SONY®

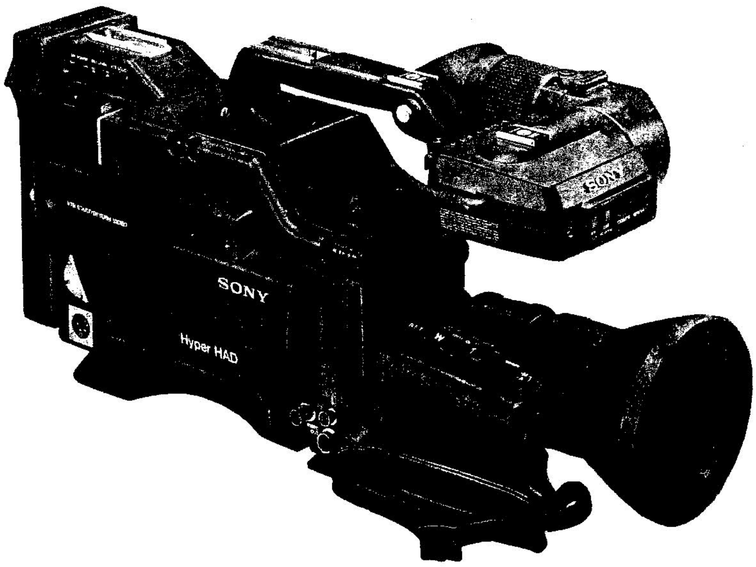
COLOR VIDEO CAMERA

DXC-327AP

UPGRADE KIT

DXK-327P

SERVICE MANUAL


SONY
Hyper HAD
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DXC-327AP+CA-537P

Hyper HAD™

SAFETY RELATED COMPONENT WARNING

Components identified by shading and ⚠ marked on the schematic diagrams and parts list are critical to safe operation. Replace these components with SONY parts whose part numbers appear as shown in this manual or in supplements published by SONY.

Warning—This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a computing device pursuant to Subpart J of Part 15 of FCC rules.

For the customers in Canada

This apparatus complies with the Class A limits for radio noise emissions set out in Radio Interference Regulations.

Pour les utilisateurs au Canada

Cet appareil est conforme aux normes Classe A pour bruits radioélectriques, spécifiés dans le Règlement sur le brouillage radioélectrique.

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DXK-327P

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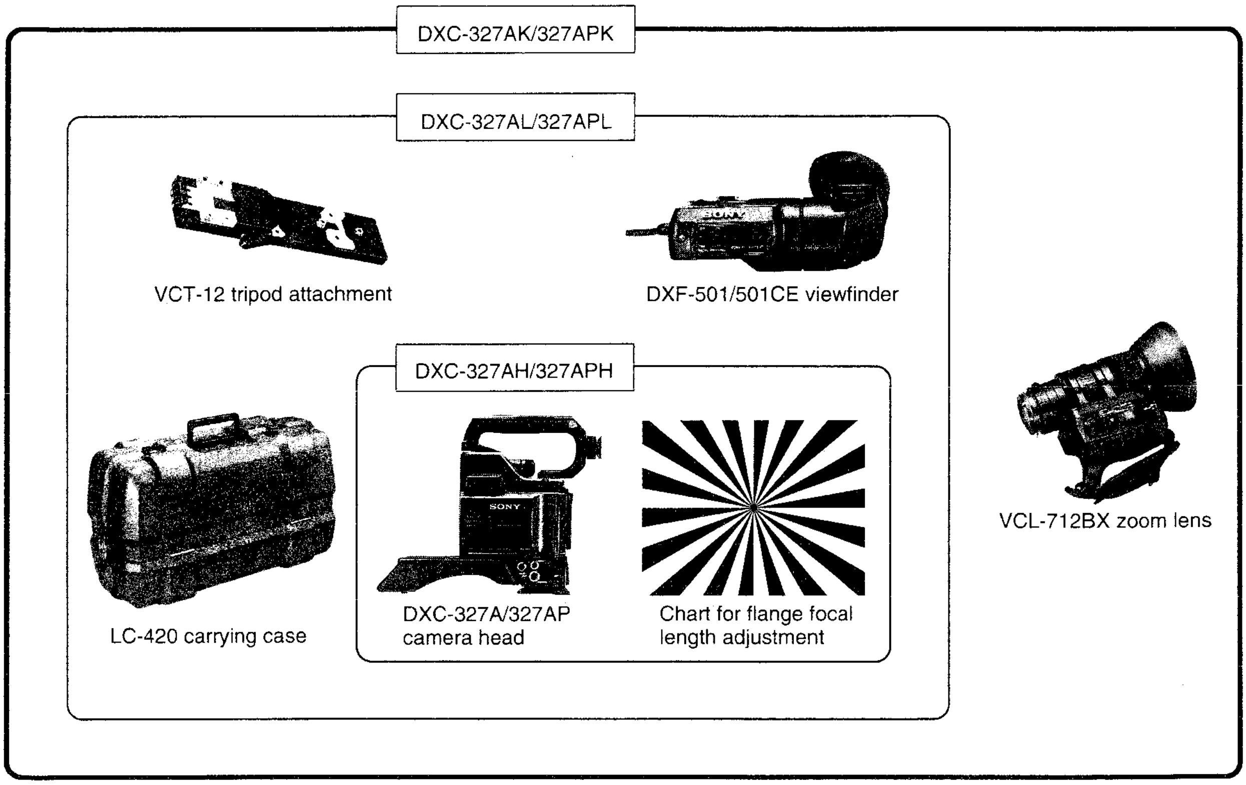
SECTION 1
GENERAL DESCRIPTION

Introduction

Composition of the DXC-327A Series Color Video Camera


DXC-327AK/327APK
DXC-327AL/327APL
VCT-12 tripod attachment
DXF-501/501CE viewfinder
DXC-327AH/327APH
LC-420 carrying case
DXC-327A/327AP camera head
Chart for flange focal length adjustment
VCL-712BX zoom lens

Composition	Model		
	DXC-327AK/ 327APK	DXC-327AL/ 327APL	DXC-327AH/ 327APH
DXC-327A/327AP camera head	Yes	Yes	Yes
VCL-712BX zoom lens		No	No
DXF-501/501CE viewfinder		Yes	
LC-420 carrying case			
VCT-12 tripod attachment			
Chart for flange focal length adjustment			Yes

Choosing from NTSC or PAL System

The following explains the differences between the NTSC and PAL system regarding accessory selection for the DXC-327A series camera.

Some PAL components can operate on NTSC equipment and vice-versa. In general, however, this is not the case. You must use the type of equipment and accessories that matches the signal system of your camera. Use the DXC-327A series camera within the NTSC color system, and use the DXC-327AP series camera within the PAL system.

Notes on Using Accessories with the DXC-327A Series Camera

- If you use the CA-537/537P Camera Adaptor (not supplied) with this camera, operate the camera according to the instructions in this manual.
- If you use the CA-327/327P Camera Adaptor (not supplied), operate the camera according to the instructions that come with the adaptor.
- If you use a zoom lens other than the VCL-712BX zoom lens, operate the camera according to the instructions that come with the lens. (For further information on accessories, see "Optional Accessories and Recommended Equipment", on page 1-79.)

Precautions

On Using and Storing the Camera

This section explains how to safely use, store and clean the camera.

When setting up the camera

- Do not attach the zoom lens without reading "Attaching the Zoom Lens and Optional Filter"on page 1-23. Attaching the lens incorrectly may damage the lens.
- Do not directly connect the camera to an AC power line. Use the recommended camera adaptor or use a 12 volt DC power source.
- Do not block air circulation about the camera to prevent internal heat build-up.

When operating the camera

- Avoid rough handling or mechanical shock.
- Avoid strong magnetic fields to prevent signal distortion.
- Avoid operating the camera in environments that exceed the temperature range of –5°C to +45°C (23°F to 113°F).
- Do not point the viewfinder directly at the sun.
- Do not grip the camera by the viewfinder.

When storing and shipping the camera

- Cover the lens with the supplied lens cap when you do not plan to use the video camera for an extended period of time.
- When you transport the camera, repack it as it was originally shipped. Do not discard the packing carton. This affords maximum protection whenever you ship the camera. Do not ship or transport the camera in the carrying case alone.
- Store the camera with the viewfinder moved fully in the direction opposite the viewfinder barrel and the lock ring tightened. (See page 1-26.)

When cleaning the camera

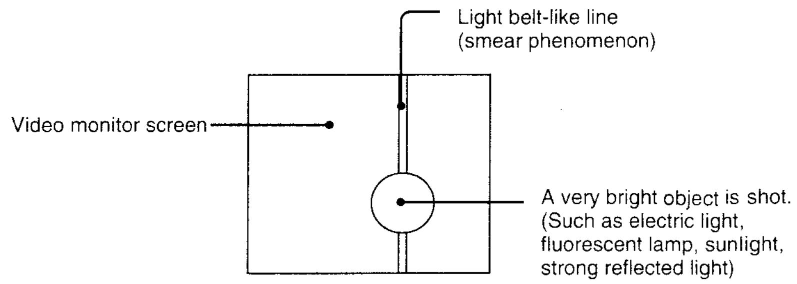
- Clean the cabinet, panel and controls with a soft, dry cloth or a cloth moistened with a mild detergent solution.
- Do not use any type of solvent, such as alcohol or benzine which might damage the finish.

Managing Hyper-Sensitivity in the CCD Image Sensor

Because of the high sensitivity of the CCD image sensors, the following phenomena may appear on the monitor screen while you are using the DXC-327A series color camera. These phenomena do not mean that there is anything wrong with the camera.

Vertical smear

Smear tends to happen when an extremely bright object such as an electric light, fluorescent lamp, sunlight, or strong reflection is being shot.


Light belt-like line
(smear phenomenon)
Video monitor screen
A very bright object is shot.
(Such as electric light,
fluorescent lamp, sunlight,
strong reflected light)

White dots

White dots may appear in the video output if the camera is used at very high temperatures.

Aliasing

Aliasing may occur when you shoot fine stripes or straight lines. The lines appear jagged.

Poor pictures

You may not get a clear picture if the GAIN selector is set to 18 dB when you are using the electronic shutter. Use the electronics shutter under lighting conditions where you can obtain a clear picture with the GAIN selector set to the 0 or 9 dB position.

Features

Hyper HAD™ Sensor CCD Chip Design

The Hyper HAD™ Sensor CCD Chip design employs three $^1/_2$-inch CCD (Charge Coupled Device) images each having a total of about 380,000 (NTSC) or 440,000 (PAL) effective picture elements. The CCD offers better picture quality over tube type pick-up devices by providing;

- higher resolution and sensitivity
- lower lag, higher image burning resistance, and no deflection distortion
- less vibration and magnetic field distortion
- higher S/N ratio that allows you to raise the video output level by 9 dB or 18 dB to get a clear picture under low light conditions.

Maximum system versatility

By attaching optional equipment you can expand the usability of the camera:

- the CA-537/537P Camera Adaptor enables you to control the camera via a camera control unit or VTR.
- the CA-325A/325AP or 325B enables multiple outputs of RGB format signal.
- a Hi8 format videocassette recorder or a Betacam format videocassette recorder PVV-1/1P, Pro 2000 series, turns your unit into a camcorder.
- the CCU-M7/M7P Camera Control Unit allow you to use the camera as a studio camera.
- the various kinds of power sources (battery, AC and DC) allow you to use the camera under many power situations.

Electronic shutter

The built-in electronic shutter ensures better pictures of fast moving objects with little blurring.

Automatic adjustment and memory functions

The camera automatically adjusts white/black balance as well as camera settings, and stores the adjustments for later use.

Viewfinder displays

So you don't have to take your eye off what you are shooting, the viewfinder displays adjustment indications and warning. The viewfinder shows the following four displays;

Characters: Show switch settings, warning indications, and the title characters to be superimposed.

Zebra pattern: Appears on the portion of the screen where the video output level is about 70 to 80 IRE (for NTSC) or 490 to 560 mV (for PAL). This pattern acts as a reference when you manually adjust the iris.

Safety zone marker and center marker: Indicate the safety zone for shooting and the center of the picture.

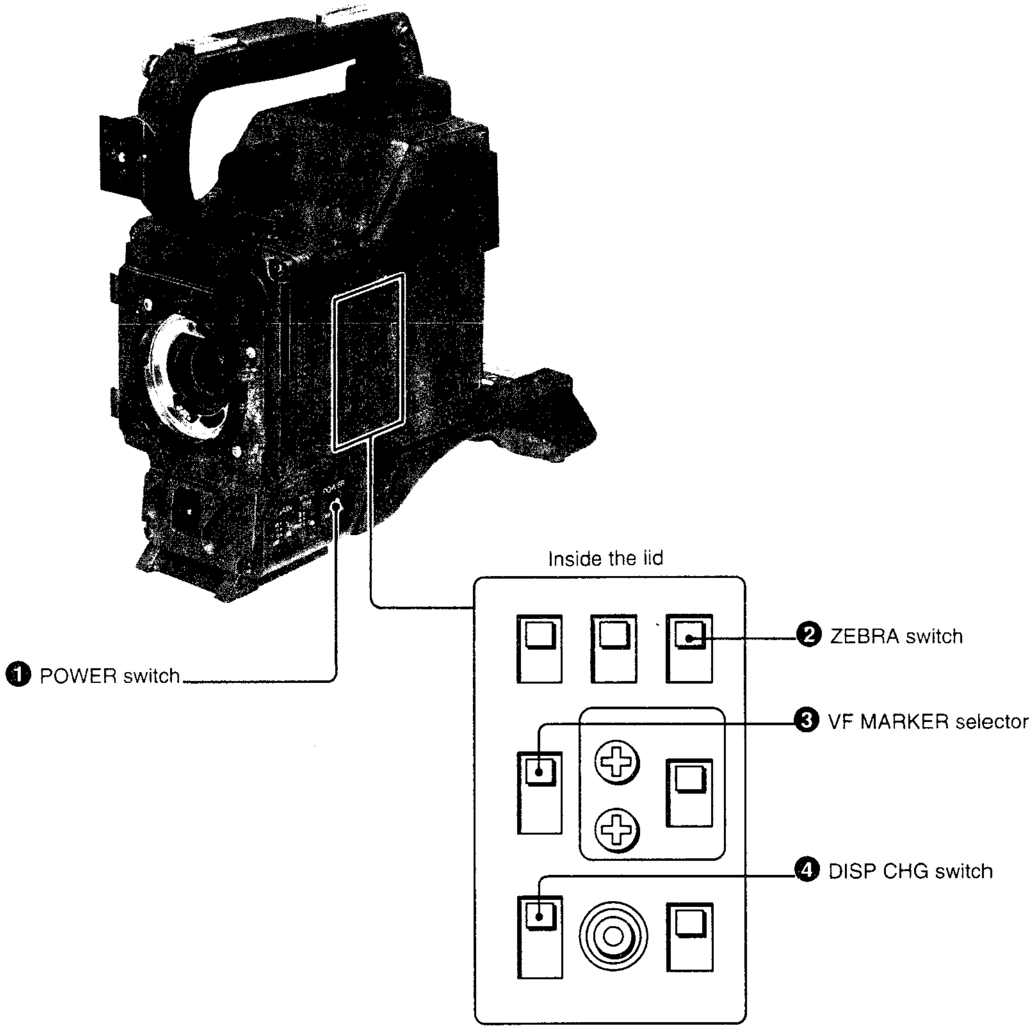
Status indicators: The REC/TALLY indicator flashes to warn the connected VTR malfunctions, the BATT indicator the weak power of the installed battery pack, and the SHUTTER and GAIN UP indicators show the setting status of the corresponding switches.

Location and Function of Parts

DXC-327A/327AP Camera Head

The DXC-327A/327AP Camera Head is the modular core of this multipurpose camera system. Depending on your purpose, connect VTRs and camera control units to it via the CA-537/537P or CA-327/327P Camera Adaptor.

Camera head power supply and indications


Inside the lid
❶ POWER switch
❷ ZEBRA switch
❸ VF MARKER selector
❹ DISP CHG switch

❶ POWER switch

OFF	Turns the camera off.
ON SAVE	Select to save power. When you press the VTR start button, there is a delay before recording starts, but the amount of power consumed in this mode is less than when the VTR is in stand-by mode (STBY). This function is activated only when the VTR has the power saving function.
ON STBY	Select for a quick start. When you press the VTR start button, recording starts immediately. In this mode power continues to be consumed while the drum heads rotate.

❷ ZEBRA switch

ON: Select to display the zebra pattern on the viewfinder screen for manual iris adjustment. The zebra pattern appears in the picture where the video level is about 70 to 80 IRE (for NTSC) or about 490 to 560 mV (for PAL). (See page 1-69.)

OFF: Select not to display the zebra pattern.

❸ VF MARKER (viewfinder safety zone marker and/or center marker) selector

Use this selector to display the safety zone marker and/or center marker on the viewfinder screen.

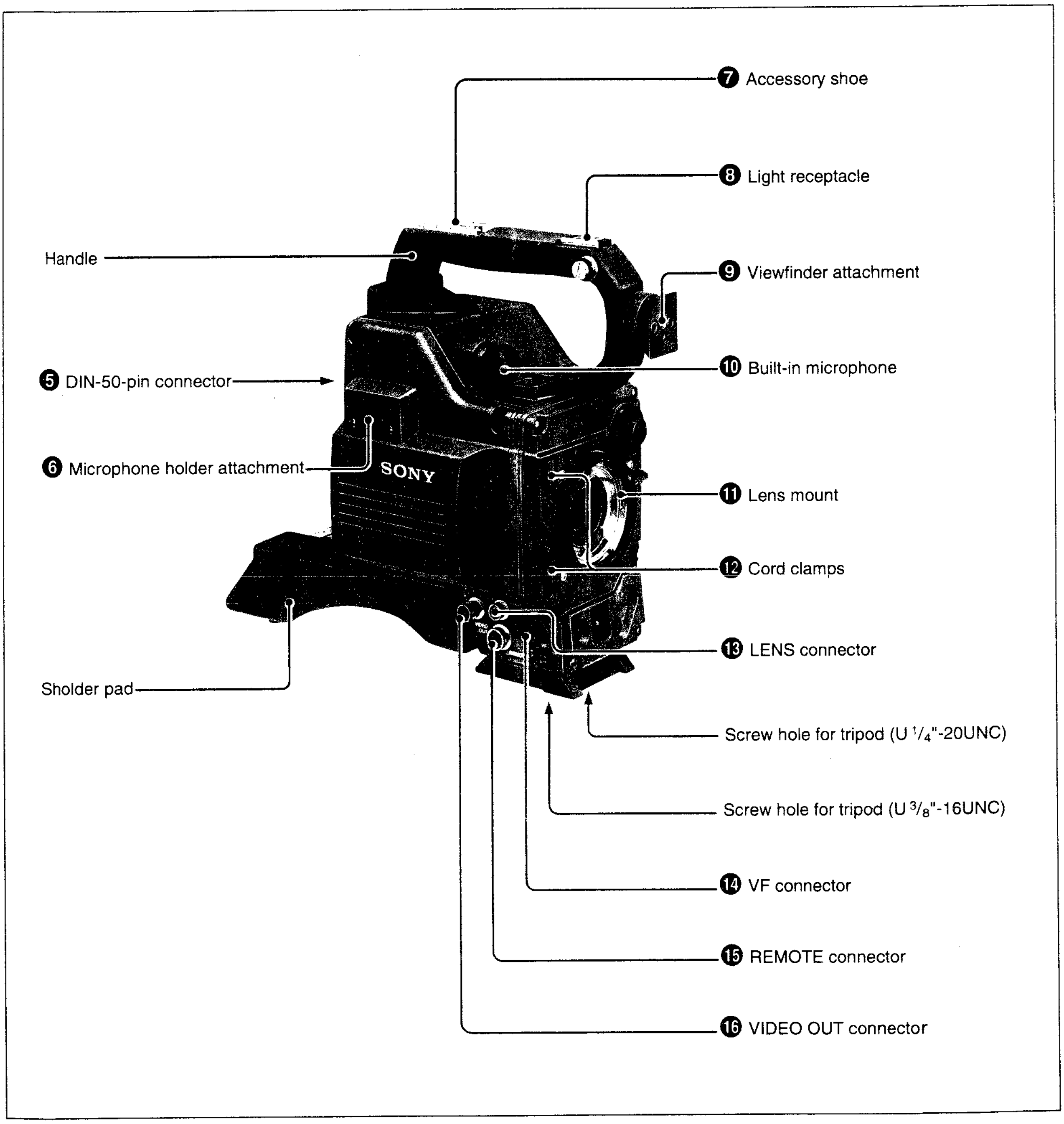
OFF	Indicates neither of the markers.
1	Indicates the safety zone marker.
2	Indicates both of the markers.

❹ DISP CHG (display change) switch

Push this switch to change the character display mode of the viewfinder screen. (See page 1-51.)

Location and Function of Parts

Camera head attachments and input/output connectors


⑦ Accessory shoe
⑧ Light receptacle
Handle
⑨ Viewfinder attachment
⑩ Built-in microphone
⑤ DIN-50-pin connector
⑥ Microphone holder attachment
SONY
⑪ Lens mount
⑫ Cord clamps
⑬ LENS connector
Sholder pad
Screw hole for tripod (U 1/4"-20UNC)
Screw hole for tripod (U 3/8"-16UNC)
⑭ VF connector
⑮ REMOTE connector
⑯ VIDEO OUT connector

❺ DIN 50-pin connector

Connect to the 50-pin connector of the camera adaptor or EVV-9000/9000P, PVV-1/1P. (See pages 1-20 to 1-22.)

❻ Microphone holder attachment

Attach an optional CAC-12 microphone holder here. (See page 1-27.)

❼ Accessory shoe

Attach an optional accessory such as an DXF-40A/40ACE, DXF-50/50CE viewfinder here.

❽ Light receptacle

Attach an optional video light or other accessories here.

❾ Viewfinder attachment

Attach the DXF-501/501CE viewfinder here.

❿ Built-in microphone

The built-in microphone allows you to make a sound recording along with the video recording. When an external microphone is connected to the MIC IN connector on the CA-537/537P Camera Adaptor, the built-in microphone does not function. We recommend you use a uni-directional external microphone to get a better sound recording when a VTR such as a PVV-1/1P, EVV-9000/9000P, is directly attached to this unit.

⓫ Lens mount

Attach the VCL-712BX zoom lens or another $^1/_2$" lens and related equipment here.

⓬ Cord clamps

Secure the viewfinder cord.

⓭ LENS connector (6-pin)

Connect the lens cord when a $^2/_3$-inch lens is attached to the camera head using an LO-32BMT Lens Mount Adaptor or when an MVA-40 Microscope Adaptor is attached to the camera.

⓮ VF connector (8-pin)

Connect the viewfinder cord here.

⓯ REMOTE connector (10-pin)

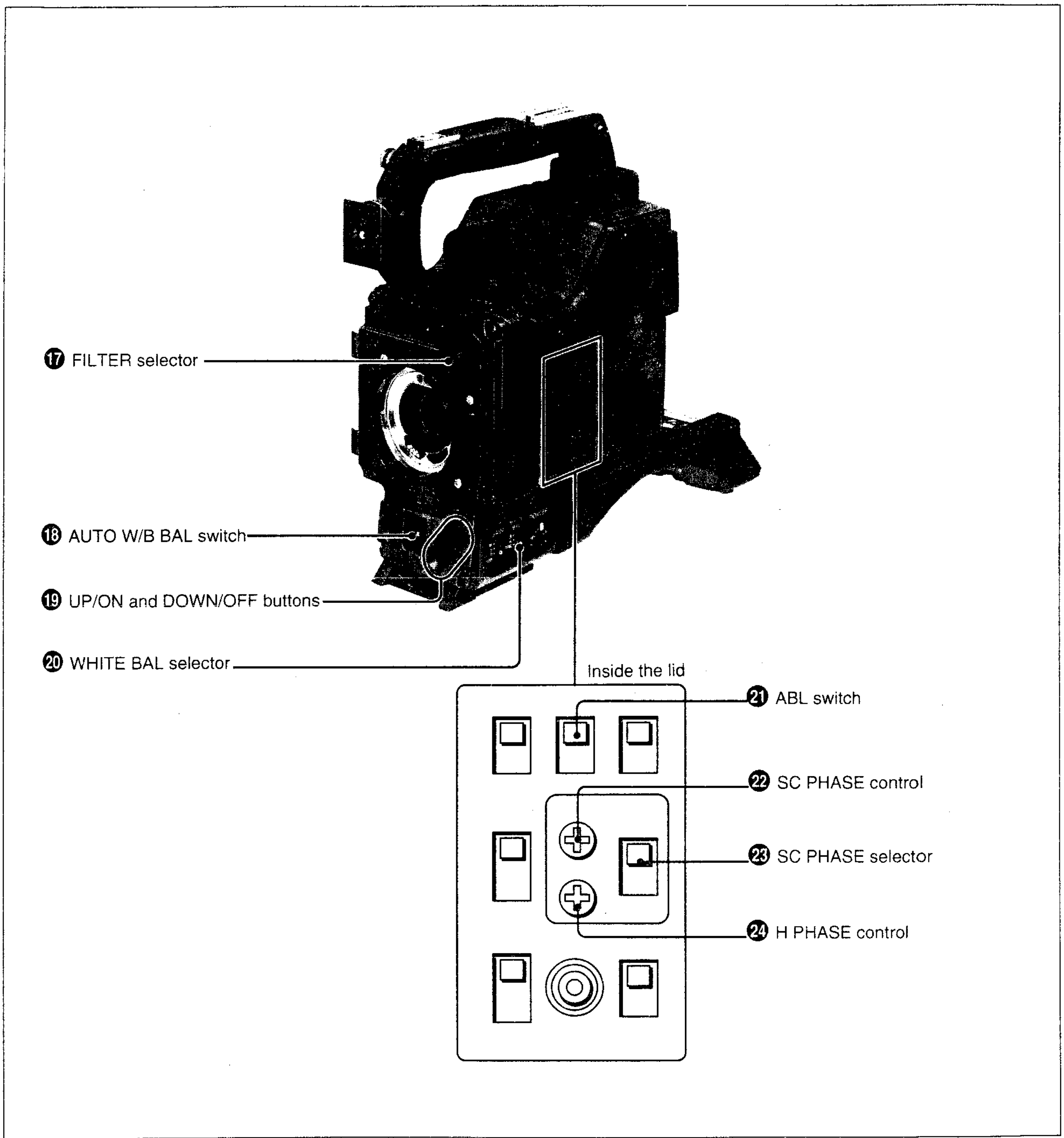
To operate this camera from an RM-M7G Camera Remote Control Unit, connect the camera to the remote control unit via this connector. Make sure the CAMERA SELECT switch on the bottom of the RM-M7G is set to "1", the factory preset position.

⓰ VIDEO OUT (output) connector (BNC type)

To check the picture of the camera you are shooting, connect to the input connector of a video monitor. Also you can connect to the video input of a VTR. Title characters display on the viewfinder screen output from this connector.

Location and Function of Parts

Camera head switches and controls


⑰ FILTER selector
⑱ AUTO W/B BAL switch
⑲ UP/ON and DOWN/OFF buttons
⑳ WHITE BAL selector
Inside the lid
㉑ ABL switch
㉒ SC PHASE control
㉓ SC PHASE selector
㉔ H PHASE control

⑰ FILTER selector

Selects the appropriate filter according to lighting conditions.

Filter number	Color temperature	Lighting conditions
1	3200K	Iodine lamp, sunrise or sunset
2	5600K + $^{1}/_{16}$ ND[1]	Bright outdoor
3	5600K	Cloudy or rainy

[1] ND: Neutral density filter

⑱ AUTO W/B BAL (automatic white/black balance adjustment) switch

Select "A" or "B" with the WHITE BAL selector ⑳, and push this switch to WHT to automatically adjust white balance. To automatically adjust black balance, push this switch to BLK. You can do this irrespective of the WHITE BAL selector setting. The setting value is stored in the camera's memory. When you release this switch, the switch returns to the center position automatically.

⑲ UP/ON and DOWN/OFF buttons

Press either of these buttons with the DISP CHG switch ❹ to make one of the following six settings to:

- Set the title characters (See page 1-72.)
- Turn on/off the LOW LIGHT indication (see page 1-49.)
- Adjust the reference level of the automatic iris (See page 1-55.)
- Adjust the detail level (See page 1-68.)
- Adjust the master pedestal level (See page 1-62.)
- Adjust the shutter speed (See page 1-63.)

⑳ WHITE BAL (white balance memory) selector

A or B: Select A or B to make the camera use the white balance setting stored in memory position A or B.

PRE: Set to PRE when there is no time to adjust the white balance. This function provides a factory-preset white balance value for a color temperature of 3200K for the selected FILTER selector position.

㉑ ABL (automatic black level) switch

When the entire picture is too bright, such as during outdoor shooting, set this switch to ON. A well-contrasted picture will be obtained.

㉒ SC (subcarrier) PHASE control

Turn this control to fine tune the SC phase using a small screwdriver. Do this after roughly adjusting the SC phase using the SC PHASE selector (see page 1-71.) Do this adjustment when you are using two or more cameras simultaneously.

㉓ SC (subcarrier) PHASE selector

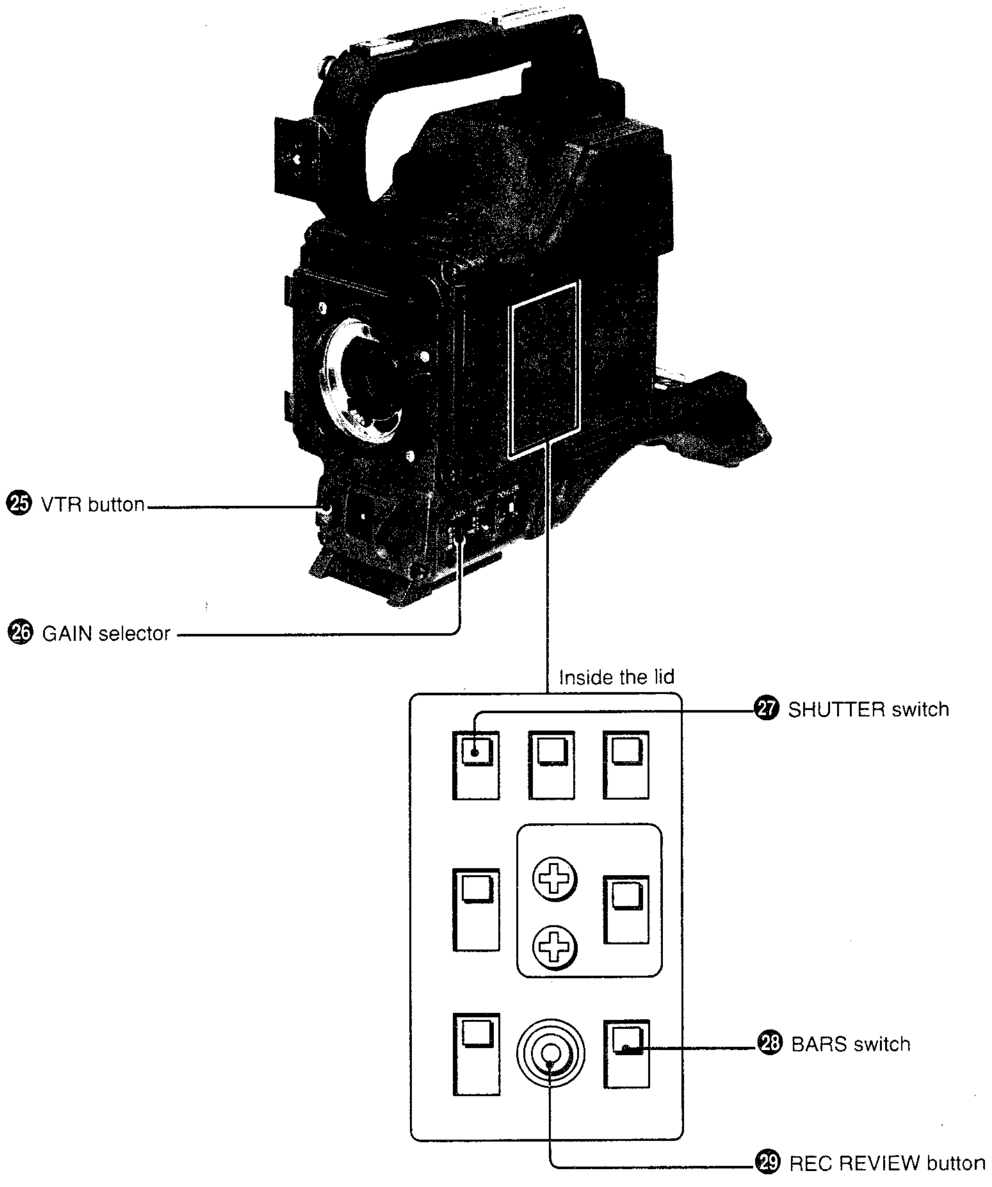
Switch this selector to 0° or 180° to roughly adjust the SC phase difference between the gen-lock input and the video output signals when using two or more cameras simultaneously. (See page 1-71.)

㉔ H (horizontal) PHASE control

Turn this control to adjust the H phase difference between the gen-lock input and video output signals using a small screwdriver. (See page 1-71.)

Location and Function of Parts

Camera head output selectors


㉕ VTR button
㉖ GAIN selector
Inside the lid
㉗ SHUTTER switch
㉘ BARS switch
㉙ REC REVIEW button

㉕ VTR button

When connecting the camera to a portable VTR, press this button to start and stop recording.
When connecting the camera to a CCU-M7/M7P or CCU-M3/M3P, keep this button depressed to monitor the return video pictures on the viewfinder. Release it to monitor the camera pictures.

㉖ GAIN selector

Select a higher setting to lighten dark pictures.

㉗ SHUTTER switch

Flip this switch to control the electronic shutter.

ON: Flip to this position to activate the electronic shutter. To select the shutter speed, use the UP/ON or DOWN/OFF button. (See page 1-63.)

OFF: Flip to this position to deactivate the electronic shutter.

㉘ BARS (color bar generation) switch

ON: Set to this position to display the color bars on the viewfinder or video monitor screen when adjusting its contrast and brightness. The color bars are output to the viewfinder, video monitor or other connected equipment from the following connectors.

- VIDEO OUT connector
- VF connector
- REMOTE connector
- VTR/CCU/CMA connector (on the camera adaptor)

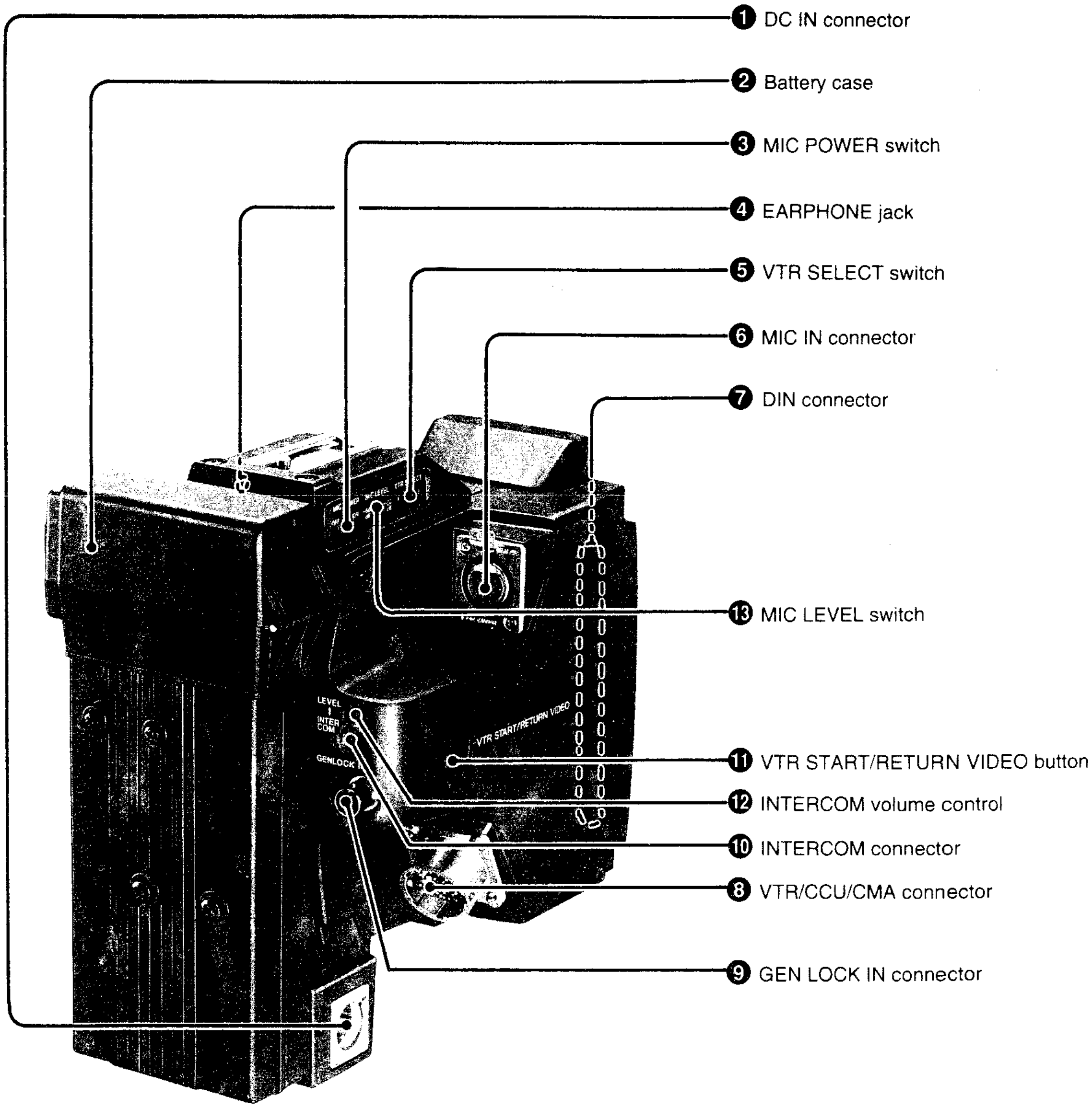
OFF: Set to this position for normal operation.

㉙ REC (record) REVIEW button

Press this button when using a VTR such as an EVV-9000/9000P, PVV-1/1P, with this camera to check the recorded picture while recording. (For details, refer to the operations manual for the cassette recorder.)

Location and Function of Parts

CA-537/537P Camera Adaptor (optional)


❶ DC IN connector
❷ Battery case
❸ MIC POWER switch
❹ EARPHONE jack
❺ VTR SELECT switch
❻ MIC IN connector
❼ DIN connector
⓭ MIC LEVEL switch
⓫ VTR START/RETURN VIDEO button
⓬ INTERCOM volume control
❿ INTERCOM connector
❽ VTR/CCU/CMA connector
❾ GEN LOCK IN connector
LEVEL
INTER COM
GENLOCK
VTR START/RETURN VIDEO

Power supply

❶ DC IN (input) connector (XLR-4 pin)

Connect an external DC power source (12 volt DC) here to supply power to the camera adaptor and camera.
When the power is supplied from this connector, power supplied from a battery pack or from the VTR/CCU/CMA connector is not used.

❷ Battery case

Insert an NP-1B or NP-1A battery pack (not supplied) here.

❸ MIC (microphone) POWER switch

ON: When you use the microphone of a phantom powering system, set the switch to this position. The power is supplied to the microphone from the MIC IN connector.

OFF: When you use a microphone other than a phantom powering system, set the switch to the OFF position.

Input and output connectors

❹ EARPHONE jack (minijack)

Connect an earphone here to monitor the playback or recording sound from the VTR.

Note

Some type of VTR may not let you monitor the sound output from the VTR. (See page 1-47).

❺ VTR SELECT switch

Use this selector according to the type of VTR connected to the camera. (See page 1-37).

Caution

Be sure to set the VTR selector to the correct VTR type; otherwise, the VTR will not operate properly.

❻ MIC IN (microphone input) connector (XLR 3-pin)

Connect an external microphone here.

❼ DIN connector (50-pin)

Connect to the 50-pin connector on the camera head.

❽ VTR/CCU/CMA connector (26-pin)

Connect a VTR, CCU-M7/M7P or CCU-M3/M3P Camera Control Unit or CMA-8A/8ACE Camera Adaptor here.

❾ GEN LOCK IN (gen-lock input) connector (BNC-type)

Connect the gen-lock sync signal (VBS or BS) for synchronization here.

❿ INTERCOM connector

Connect a DR-100A intercom headset here. The DR-100A enables communication between the camera and the connected CCU-M7/M7P or CCU-M3/M3P Camera Control Unit or video switcher.

Switches and controls

⓫ VTR START/RETURN VIDEO button

When a portable VTR is connected to the VTR/CCU/CMA connector: Press this button to start and stop recording.
When the CCU-M7/M7P or CCU-M3/M3P Camera Control Unit is connected: Keep this button depressed to monitor the return video picture, and release it to monitor the camera picture.

⓬ INTERCOM volume control

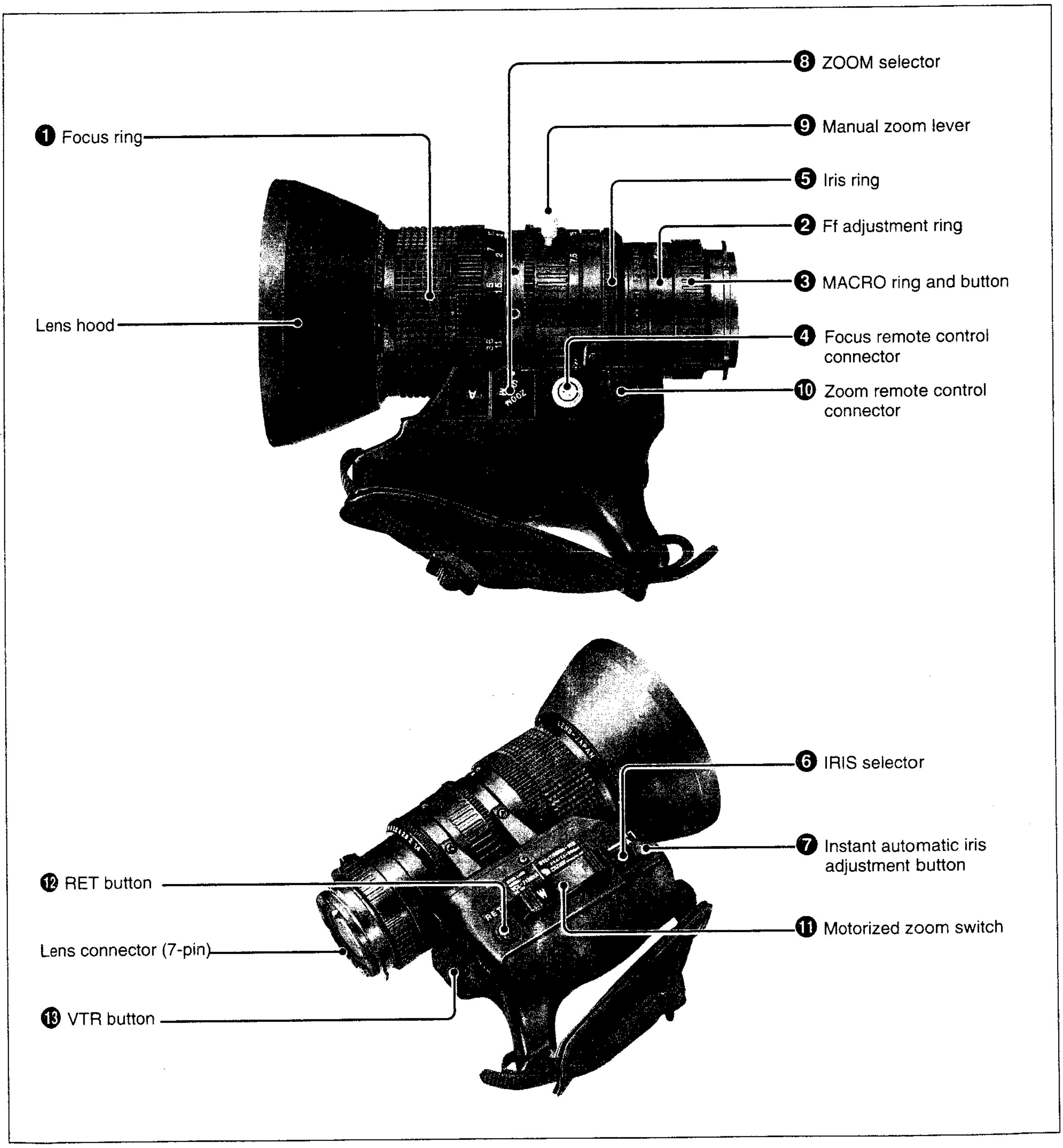
Controls the volume level through the DR-100A Intercom Headset.

⓭ MIC (microphone) LEVEL switch

Set this switch according to the sensitivity of the MIC IN on the VTR and CCU. If the sensitivity is high, set it to a minimum of –20 dB; if it is low, set it to a maximum of –60 dB. (Refer to the operations manual of the VTR.)

Location and Function of Parts

VCL-712BX Zoom Lens


⑧ ZOOM selector
① Focus ring
⑨ Manual zoom lever
⑤ Iris ring
② Ff adjustment ring
③ MACRO ring and button
Lens hood
④ Focus remote control connector
⑩ Zoom remote control connector
⑥ IRIS selector
⑦ Instant automatic iris adjustment button
⑫ RET button
⑪ Motorized zoom switch
Lens connector (7-pin)
⑬ VTR button

Focusing

❶ Focus ring

To focus, turn this ring.

❷ Ff (flange focal length) adjustment ring

To adjust the Ff, release the screw and turn the ring.

❸ MACRO (close-up) ring and button

To do close-up, turn the MACRO ring while sliding the button.

❹ Focus remote control connector (3-pin)

Not used.

Iris adjustment

❺ Iris ring

To manually adjust the iris, turn this ring with the iris selector ❻ set to M.

❻ IRIS selector

A (automatic): Select to adjust the iris automatically.
M (manual): Select to adjust the iris manually.

❼ Instant automatic iris adjustment button

To automatically adjust the iris during manual iris adjustment, keep this button depressed. When the button is released, the iris will remain at the value that has just been obtained and will stay that way until you manually adjust the iris again.

Zoom controls

❽ ZOOM selector

S (servo): Select for motorized zoom action.
M (manual): Select for manual zoom.

❾ Manual zoom lever

To do manual zoom, move this lever with the ZOOM selector ❽ set to M.

❿ Zoom remote control connector (8-pin)

To do remote control zoom when the camera is attached to a tripod, connect an LO-23 Lens Remote Control Unit (optional) here.

⓫ Motorized zoom switch

For motorized zoom action, set the zoom selector to S. Then, press either end of the motorized zoom switch, W for a wide angle shot, and T for a telephoto shot. Press the switch down all the way for faster zoom action and only slightly for slow zoom action.

Recording controls

⓬ RET (return video) button

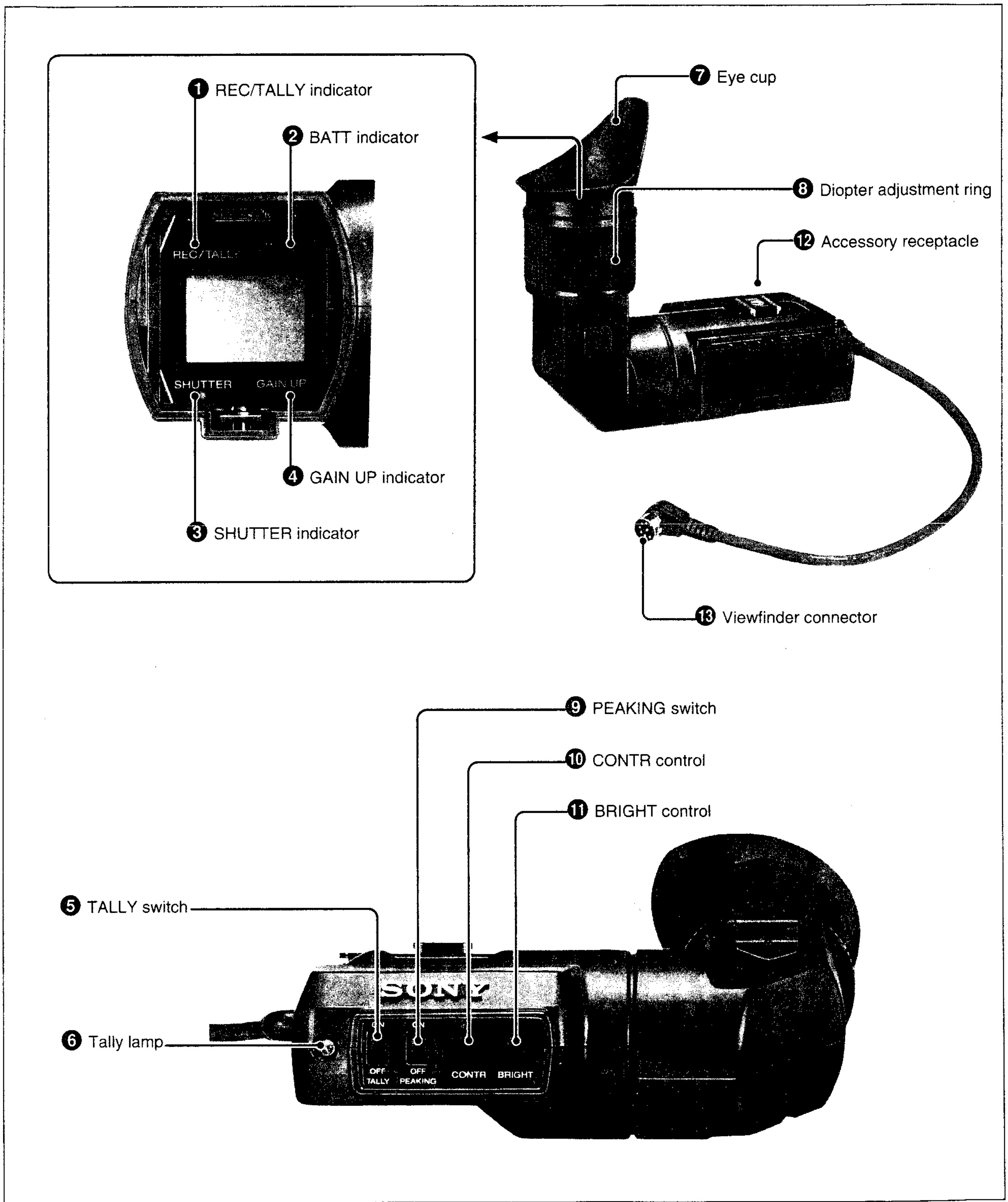
When a portable VTR is connected, keep this button depressed to monitor the E-E picture on the viewfinder screen. Release the button to monitor the camera picture.
When a CCU-M7/M7P or M3/M3P Camera Control Unit is connected, keep this button depressed to monitor the return video picture on the viewfinder screen. Release the button to monitor the camera picture.

⓭ VTR button

When a portable VTR is connected, press this button to stop and start recording. This button has the same function as the VTR button on the camera head.
When a CCU-M7/M7P or M3/M3P Camera Control Unit is connected, keep this button depressed to monitor the return video picture on the viewfinder screen. Release the button to monitor the camera picture. Starting and stopping recording is controlled on the VTR.

Location and Function of Parts

DXF-501/501CE Electronic Viewfinder


❶ REC/TALLY indicator
❷ BATT indicator
REC/TALLY
SHUTTER
GAIN UP
❹ GAIN UP indicator
❸ SHUTTER indicator
❼ Eye cup
❽ Diopter adjustment ring
⓬ Accessory receptacle
⓭ Viewfinder connector
❾ PEAKING switch
❿ CONTR control
⓫ BRIGHT control
❺ TALLY switch
❻ Tally lamp
SONY
ON
OFF
TALLY
ON
OFF
PEAKING
CONTR
BRIGHT

Viewfinder indicators

❶ REC/TALLY indicator (red)

This indicator has three functions as described below.

When you are recording using one camera,
This indicator lights up during recording.

When two or more cameras are being operated by a CCU-M7/M7P or M3/M3P,
This indicator lights up when the camera's picture is selected by a control console or video switcher.

When the connected VTR is equipped with a warning system,
This indicator flashes in accordance with the warning system in the VTR.

❷ BATT (battery) indicator (red)

This indicator starts flashing when the voltage from the battery in the camera, VTR, or camera control unit begins to drop below a specified level. When the voltage level reaches about 11 volts (the unit cannot operate below this level) the indicator lights steadily. (For details, see the "Battery life warning" on page 1-41.)

Note

With some types of VTR, the indicator may not light or flash.

❸ SHUTTER indicator (red)

This indicator lights up when the SHUTTER switch on the camera head is set to ON.

❹ GAIN UP indicator (orange)

This indicator lights up when the GAIN selector is set to 9 dB or 18 dB.

❺ TALLY switch

ON: To activate the tally lamp.
OFF: To deactivate the tally lamp.

❻ Tally lamp (red)

This lamp lights up when the TALLY switch ❺ is set to ON. This lamp operates the same as the REC/TALLY indicator ❶.

Viewfinder display and controls

❼ Eye cup

To see the viewfinder screen, look through this eye cup.

❽ Diopter adjustment ring

This ring adjust the diopter. (See page 1-52.)

❾ PEAKING switch

To increase the sharpness of the picture in the viewfinder for easy focusing, set this switch to ON.

❿ CONTR (contrast) control

To adjust the contrast the picture in the viewfinder, turn this dial.

⓫ BRIGHT (brightness) control

To get a brighter picture, turn this dial clockwise.

Viewfinder attachment and connector

⓬ Accessory receptacle

This allows you to attach various accessories.
(U $^1/_4$"-20UNC, screw length: max. 6 mm.)

⓭ Viewfinder connector

This connects to the VF connector on the camera head.

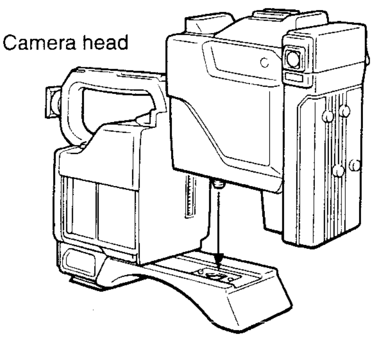
Accessory Attachment

Attaching/Detaching a Camera Adaptor

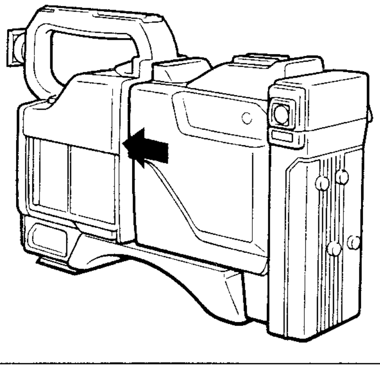
To use the DXC-327A/327AP camera head as a stand-alone camera, set up the camera head with a camera control unit or portable VTR using as interface the optional Sony CA-537/537P or CA-327/327P Camera Adaptor. Refer to the CA-327/327P operations manual for instructions on how to attach and detach that unit. Refer to the below procedure to attach the CA-537/537P Camera Adaptor.

Attaching the CA-537/537P camera adaptor

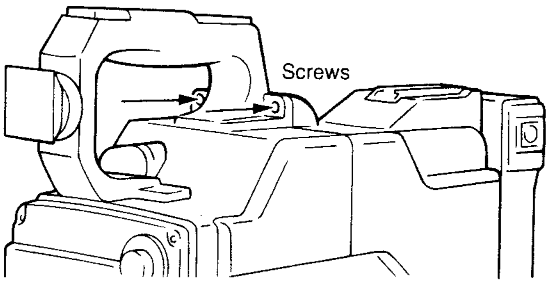
1 Place the camera adaptor on the camera head aligning the guide with the guide hole.



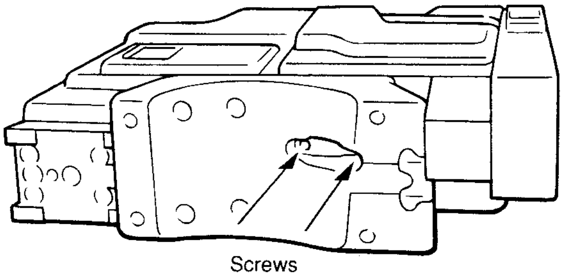
2 Push the camera adaptor forward along the grooves until its 50-pin connector locks into the DIN 50-pin connector on the camera.



3 Fix the camera adaptor to the camera head using the two screws.



4 Tighten the two screws at the bottom of the shoulder pad.



Detaching the camera adaptor

To detach the camera adaptor, reverse the order of the above procedure.

Note on connection with the CA-327/327P camera adaptor

You can connect the following CA-327/327P series camera adaptors to the DXC-327A/327AP:

CA-327: Serial No. 10271 and higher for the DXC-327A.
CA-327P: Serial No. 40101 and higher for the DXC-327AP.

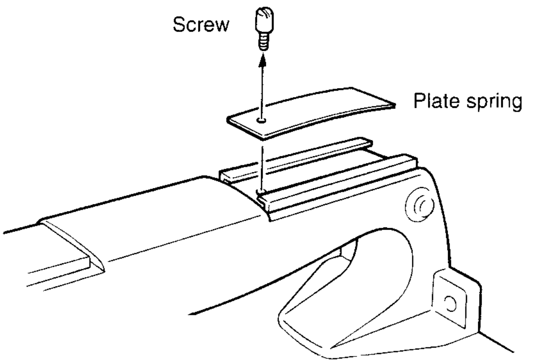
Accessory Attachment

Attaching a Videocassette Recorder

To attach an EVV-9000/9000P Hi8 Format Videocassette Recorder to the camera head, follow the procedures for attaching and detaching the CA-537/537P Camera Adaptor.
To attach a Betacam format video cassette recorder such as a PVV-1/1P, follow the procedure below.
Refer to the EVV-9000/9000P and PVV-1/1P operations manual for details.

1 Remove the screw of the accessory shoe on the camera head using a flat-head screwdriver, and remove the plate spring.

2 Attach the PVV-1/1P following the procedures for attaching the CA-537/537P.



Attaching the Zoom Lens and Optional Filter

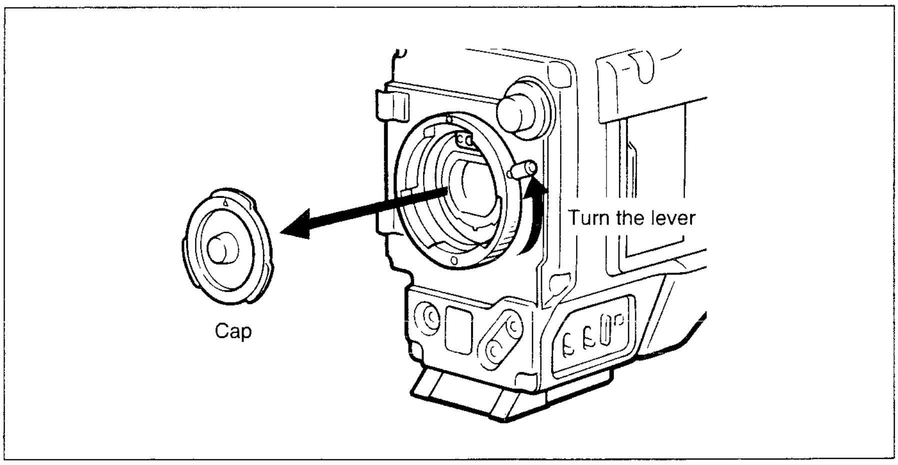
Check that the zoom lens you are going to mount is a $^1/_2$-inch lens.

Caution

A $^2/_3$-inch lens cannot be directly attached to the lens mount of the video camera. Do not try to mount a $^2/_3$-inch lens directly to the video camera's lens mount as doing so will damage the optical block of the camera. To mount a $^2/_3$-inch lens, use an LO-32BMT Lens Mount Adaptor (optional).

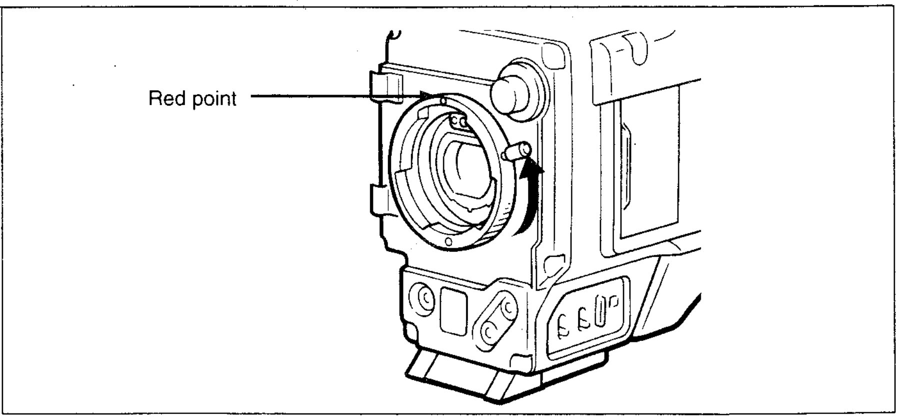
Preparations

Remove the protective caps from the mounts of the camera and the lens.



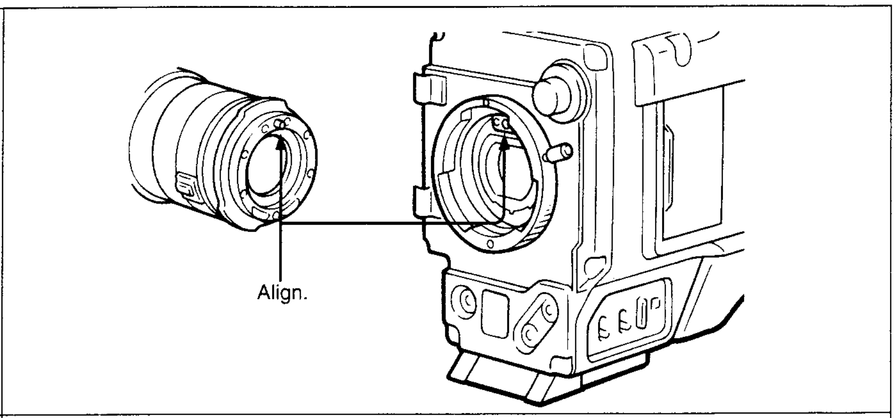
Attaching the zoom lens

1 Turn the mount clamp lever fully counter clockwise to align the lens notch and the red point.

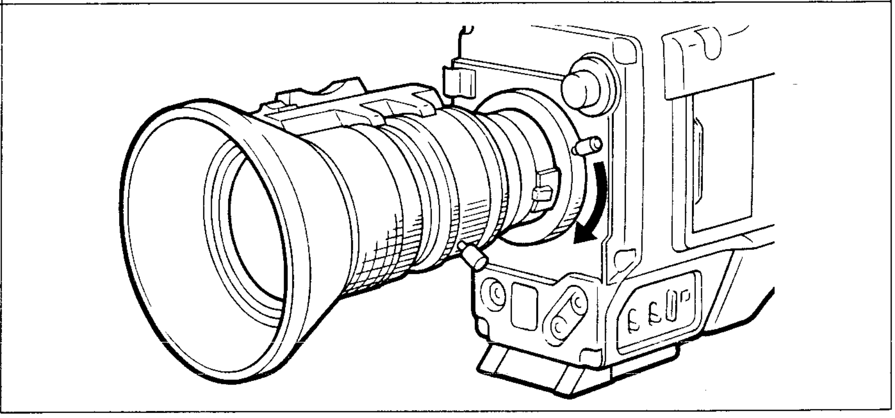


Accessory Attachment

2 Align the center pin in the lens with the notch in the lens mount, and insert the lens into the mount.

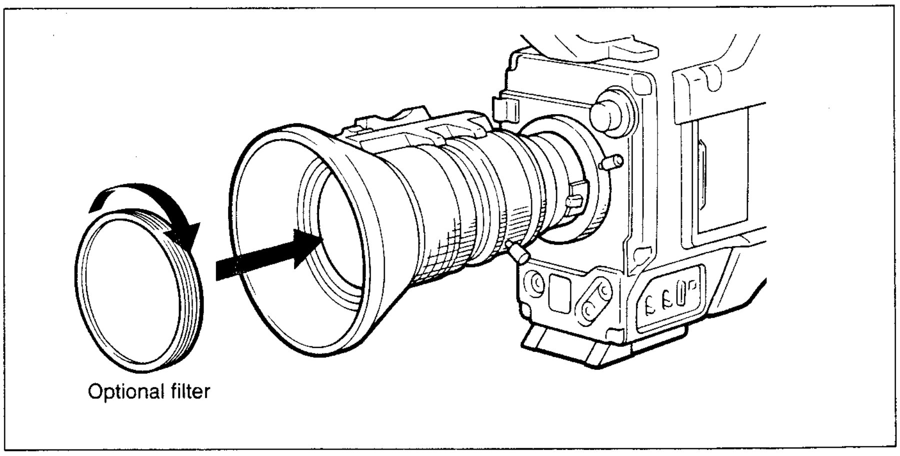


3 Holding the lens, push down on the lens fixing lever to tighten the ring and secure the lens.



Attaching an optional filter

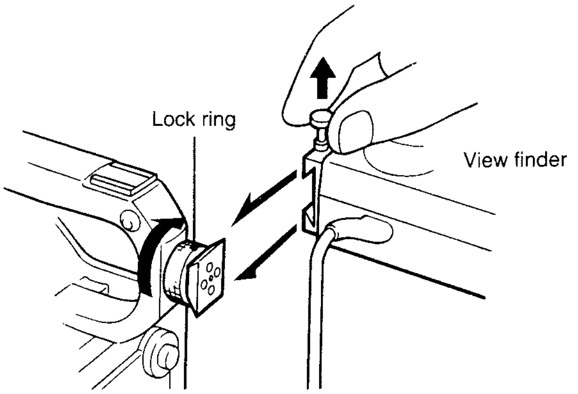
Screw the filter on clockwise to attach.



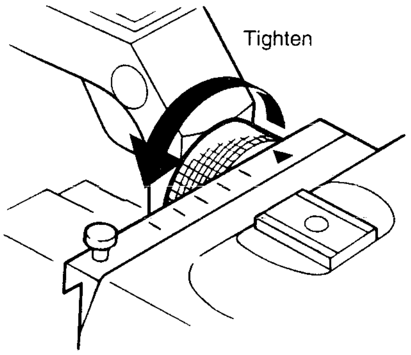
Attaching and Adjusting the Electronic Viewfinder

1 Loosen the lock ring. While pulling up on the pin, align and guide the viewfinder along the mount.

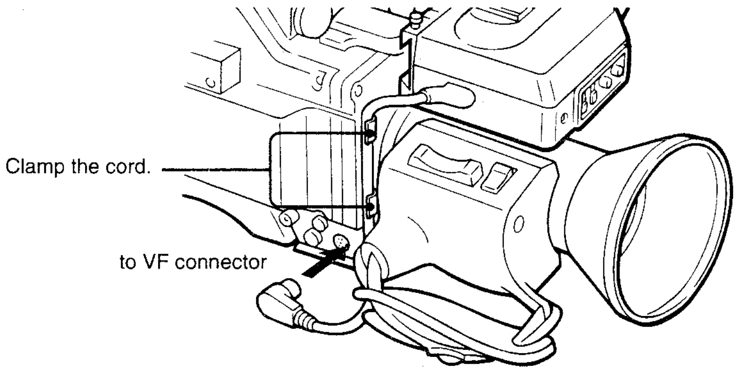
To detach the viewfinder, loosen the lock ring. Then while pulling up the pin, slide the viewfinder off the mount.


Lock ring
View finder

2 Turn and tighten the lock ring to fix the viewfinder.



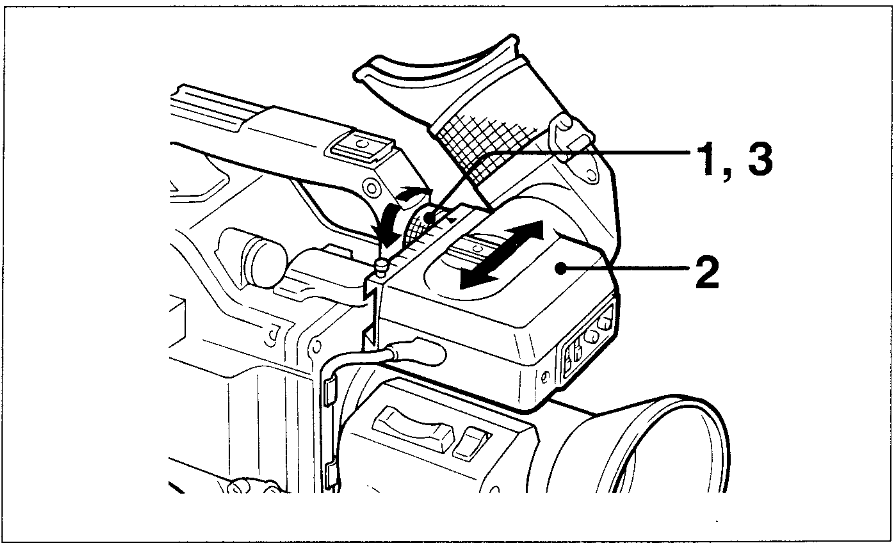
3 Connect the viewfinder connector cable to the VF connector on the camera head.


Clamp the cord.
to VF connector

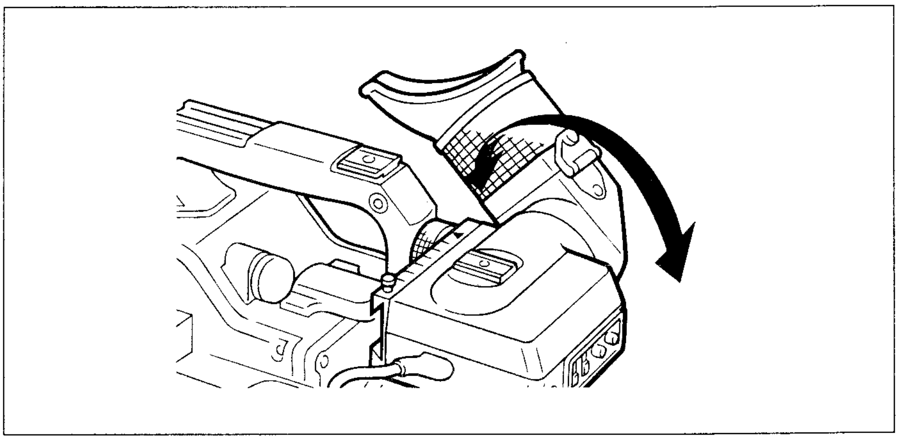
Accessory Attachment

Adjusting to the left or right

Loosen the lock ring.
Looking through the eyepiece, slide the viewfinder sideways to the most convenient position.
Tighten the lock ring when the viewfinder is in a comfortable position.

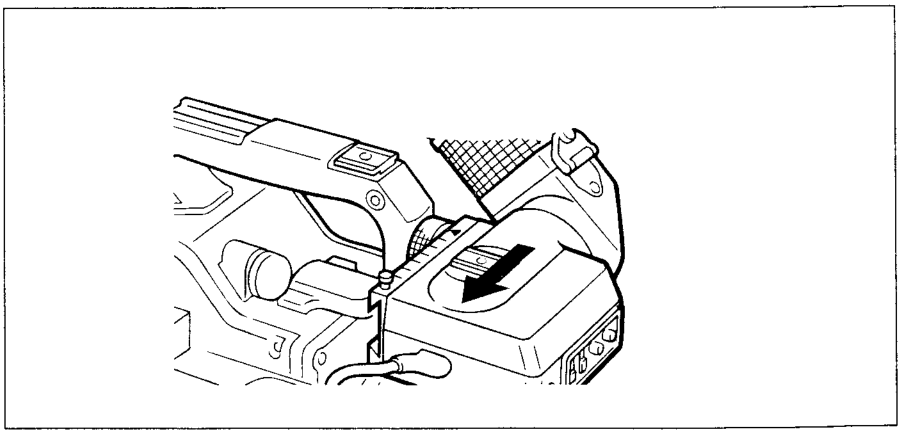


Adjusting the angle



Storing the unit in the carrying case

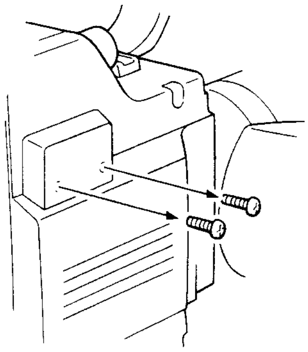
Always store the unit with the viewfinder positioned as close to the camera body as possible, and the lock ring fastened.



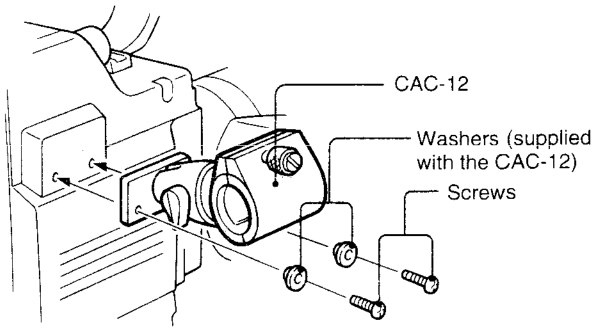
Attaching a Microphone

In order to attach an ECM-672 External Microphone (optional), first fit a CAC-12 Microphone Holder (optional) to the camera head.

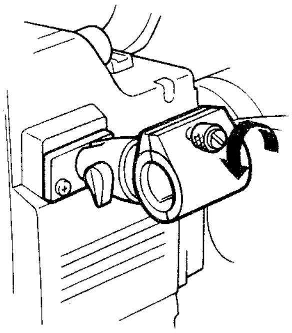
1 Remove the two screws from the side of the camera head.



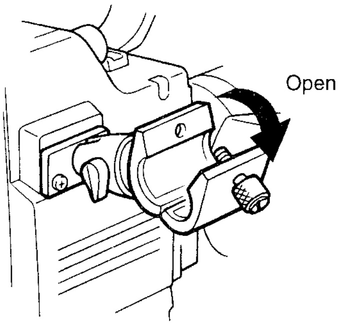
2 Using the screw removed in Step 1, attach the CAC-12 Microphone Holder.


CAC-12
Washers (supplied with the CAC-12)
Screws

3 Loosen the microphone holder bolt.

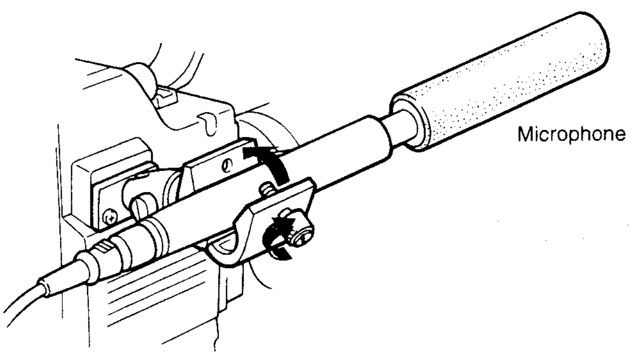


4 Open the microphone holder.

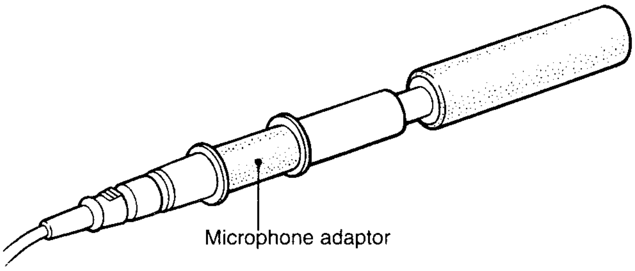


Accessory Attachment

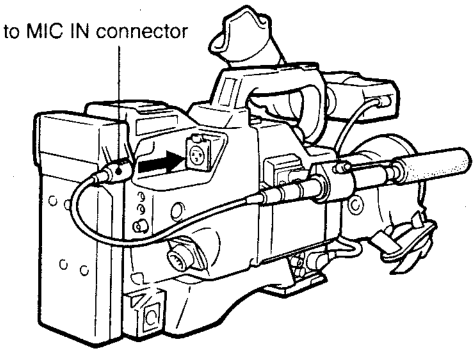
5 Insert the microphone in the microphone holder, close the holder and tighten the microphone holder bolt.


Microphone

When using a bayonet (thin) type microphone, attach a microphone adaptor to the microphone.


Microphone adaptor

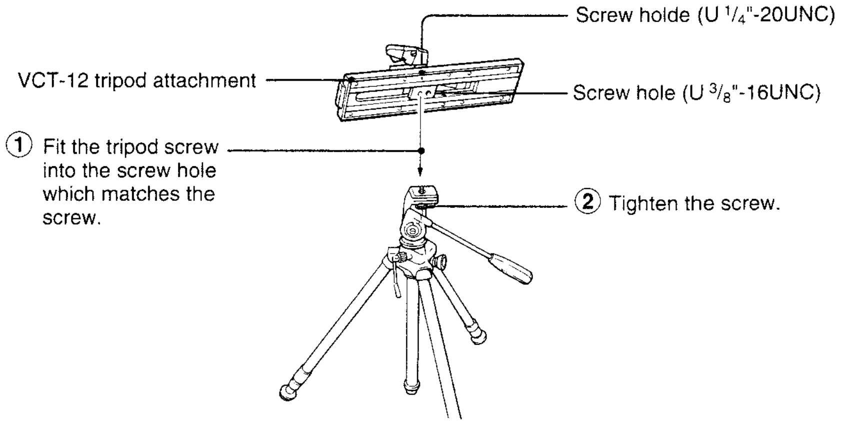
6 Connect the microphone cable to the MIC IN connector.


to MIC IN connector

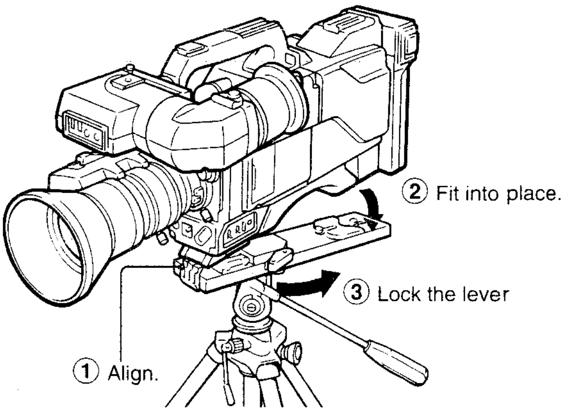
Attaching/Detaching a Tripod

The fully loaded camera may be mounted directly onto a tripod. However, for a more secure operation, fit the camera to a VCT-12 tripod attachment before attaching it to a tripod stand.

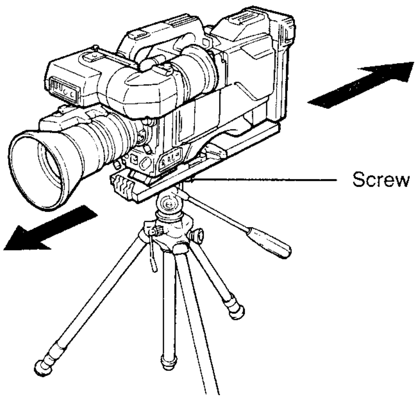
1 Attach the tripod attachment to the tripod.


Screw holde (U 1/4"-20UNC)
VCT-12 tripod attachment
Screw hole (U 3/8"-16UNC)
① Fit the tripod screw into the screw hole which matches the screw.
② Tighten the screw.

2 Mount the unit on the tripod attachment.


② Fit into place.
③ Lock the lever
① Align.

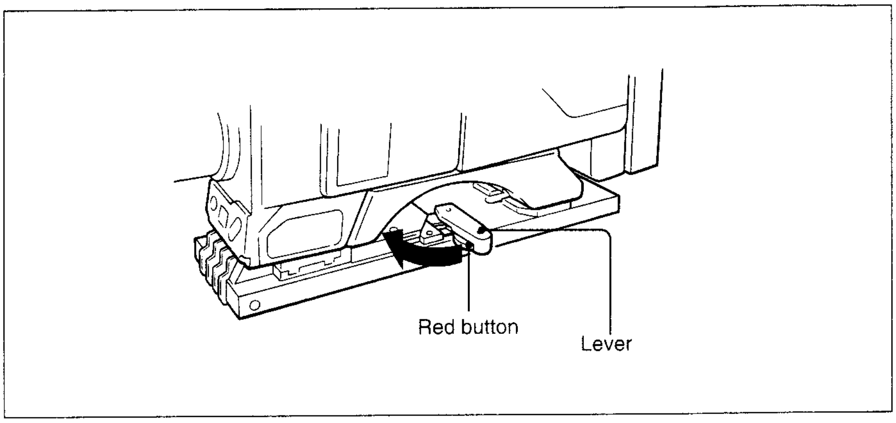
3 Slightly loosen the tripod screw, and move the camera to be balanced. Tighten the screw.



Accessory Attachment

Detaching the camera from the tripod

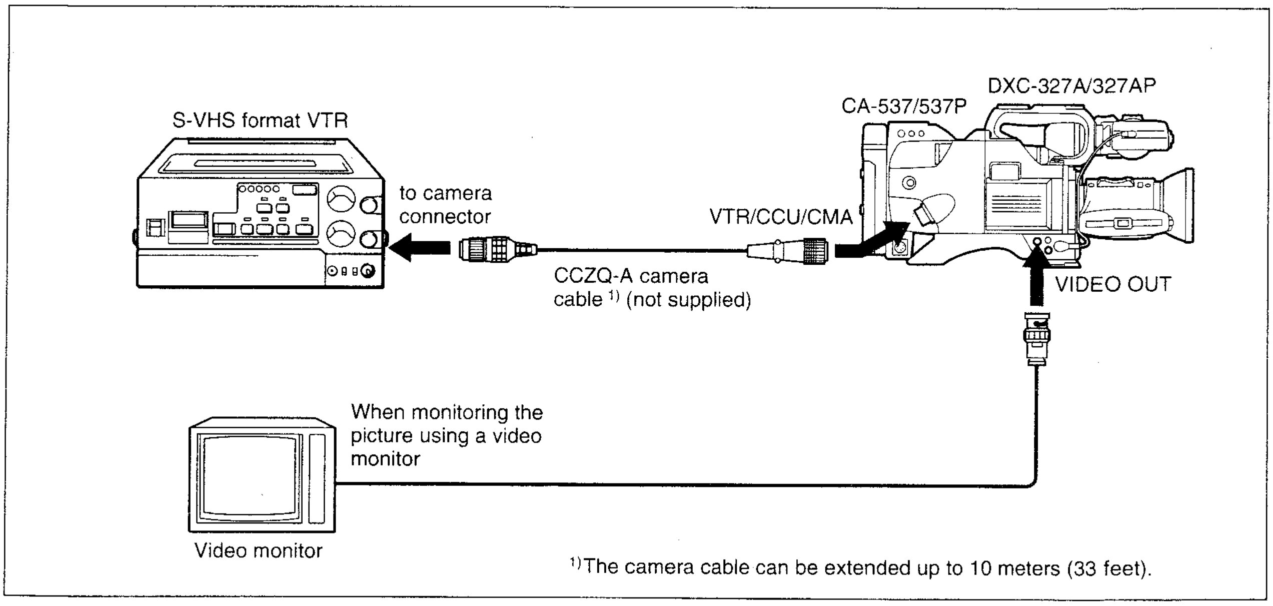
While pressing the red button, push the lever in the direction indicated by the arrow and detach the camera from the tripod attachment.



Connections

Make sure the power switches on the camera, VTR, and other equipment are set to OFF.
Attach the CA-537/537P Camera Adaptor to the camera head before attaching any of the below equipment.
Consult the "Differences in functions" on page 1 - 38 for details on the functions available with different VTRs. For the general use of the camera with a VTR attached, see "Basic Operations" on page 1 - 44.

Connecting an S-VHS Format Portable VTR

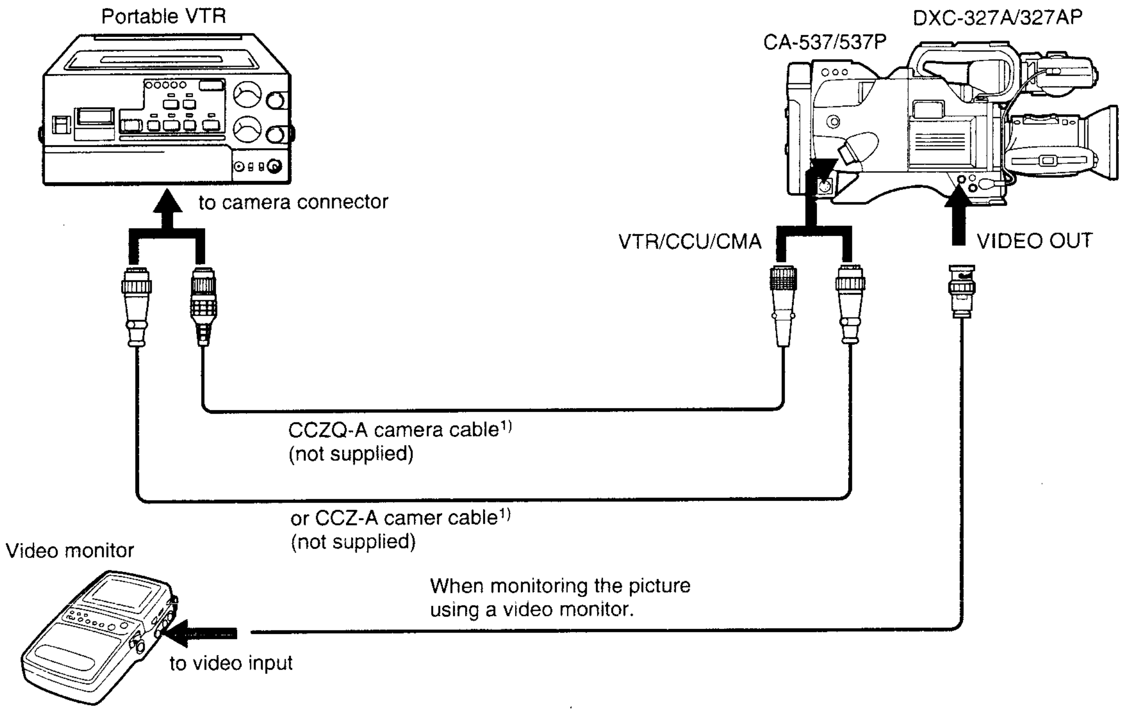

S-VHS format VTR
to camera connector
VTR/CCU/CMA
CA-537/537P
DXC-327A/327AP
CCZQ-A camera cable 1) (not supplied)
VIDEO OUT
When monitoring the picture using a video monitor
Video monitor

[1] The camera cable can be extended up to 10 meters (33 feet).

- When a video monitor equipped with an S-video input connector, connect the S-video connectors on the VTR and video monitor. Then a picture with high resolution with a Y/C separate signal can be monitored.
- When an S-VHS format VTR is connected via a CA-537/537P Camera Adaptor, set the VTR SELECT switch on the CA-537/537P to "3". Then a Y/C separate signal is output from the VTR/CCU/CMA connector on the CA-537/537P.
- A composite video signal is output from the VIDEO OUT connector.

Connections

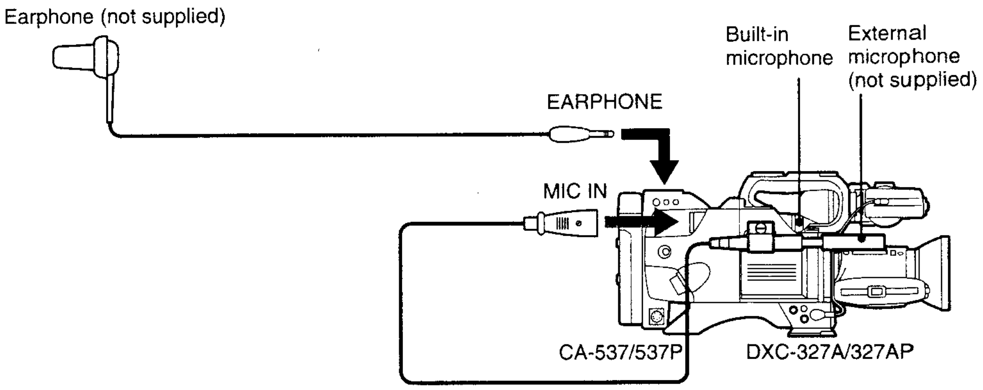
Connecting a Portable VTR


Portable VTR
DXC-327A/327AP
CA-537/537P
to camera connector
VTR/CCU/CMA
VIDEO OUT
CCZQ-A camera cable[1]
(not supplied)
or CCZ-A camer cable[1]
(not supplied)
Video monitor
When monitoring the picture
using a video monitor.
to video input

[1] The camera cable can be extended up to 10 meters (33 feet) long.

Connecting an External Microphone

To avoid recording noise made while handling the camera, connect an external microphone to the MIC IN connector on the camera adaptor (see figure below). With the below connections, note that the built-in microphone automatically shuts off.


Earphone (not supplied)
Built-in
microphone
External
microphone
(not supplied)
EARPHONE
MIC IN
CA-537/537P
DXC-327A/327AP

Connecting a Table-Top VTR

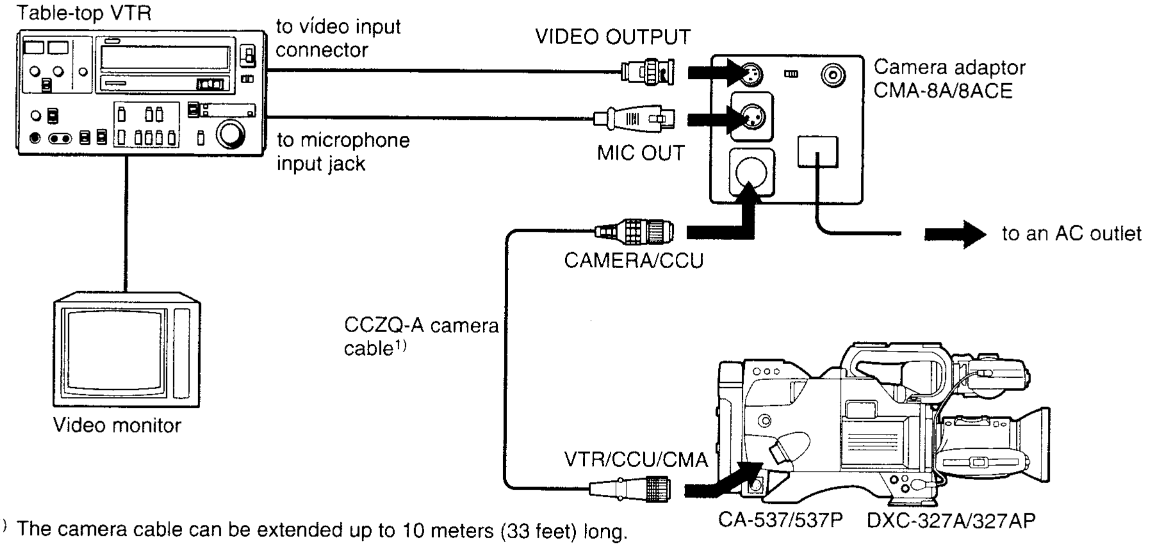


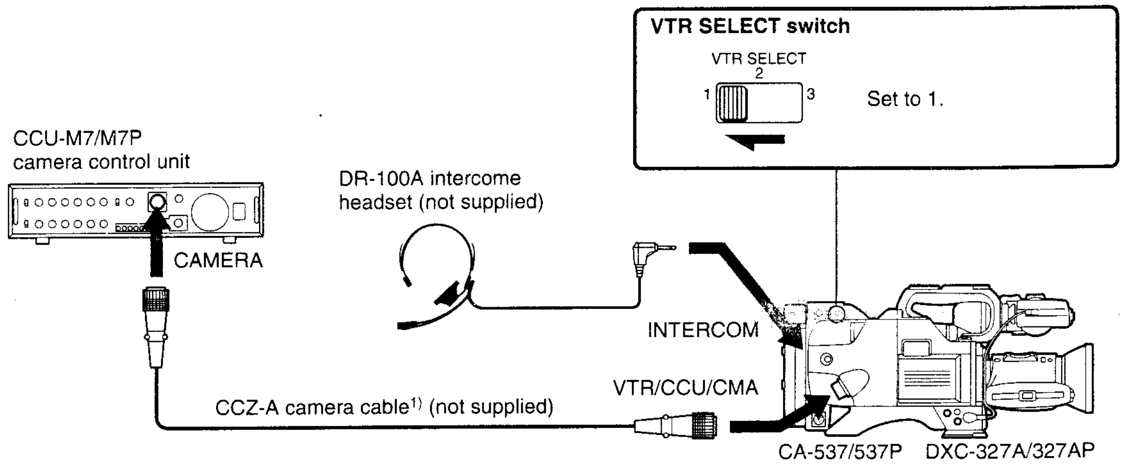
Table-top VTR
to video input connector
VIDEO OUTPUT
Camera adaptor CMA-8A/8ACE
to microphone input jack
MIC OUT
to an AC outlet
CAMERA/CCU
CCZQ-A camera cable[1]
Video monitor
VTR/CCU/CMA
CA-537/537P
DXC-327A/327AP

[1] The camera cable can be extended up to 10 meters (33 feet) long.

Connections

Connecting a Camera Control Unit

Connecting the CCU-M7/M7P camera control unit

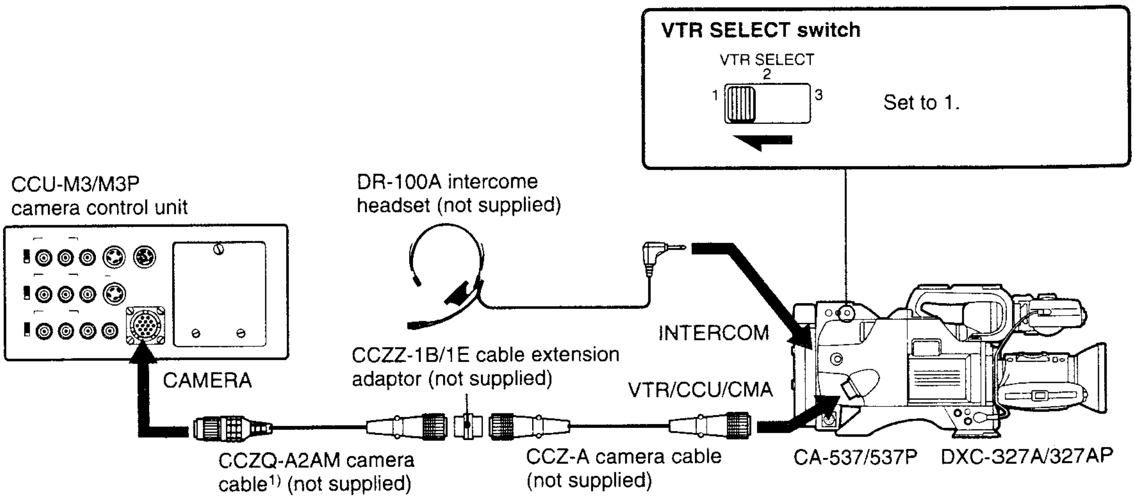

VTR SELECT switch
VTR SELECT
1
2
3
Set to 1.
CCU-M7/M7P
camera control unit
DR-100A intercome
headset (not supplied)
CAMERA
INTERCOM
VTR/CCU/CMA
CCZ-A camera cable¹⁾ (not supplied)
CA-537/537P
DXC-327A/327AP

[1] The camera cable can be extended up to 300 m (990 feet) using the CCZZ-1B or CCZZ-1E Cable Extension Adaptor.

Gamma and knee controls with the CCU-M7/M7P connected

When the camera is connected to the CCU-M7/M7P, the GAMMA controls and KNEE controls of the CCU-M7/M7P do not affect the video output signal of the camera. However, the setting value of the GAMMA and KNEE level on the monitor screen change.

Connecting the CCU-M3/M3P camera control unit


VTR SELECT switch
VTR SELECT
1
2
3
Set to 1.
CCU-M3/M3P
camera control unit
DR-100A intercome
headset (not supplied)
INTERCOM
CCZZ-1B/1E cable extension
adaptor (not supplied)
CAMERA
VTR/CCU/CMA
CCZQ-A2AM camera
cable¹⁾ (not supplied)
CCZ-A camera cable
(not supplied)
CA-537/537P
DXC-327A/327AP

[1] The camera cable can be extended up to 100 m (330 feet) long.

Notes on use with the CCU-M7/M7P or CCU-M3/M3P camera control unit

Switch setting

- Set the VTR SELECT switch on the camera adaptor to "1."
- When the camera is connected to the CCU, the following switches on the camera head do not operate:
  GAIN selector
  WHITE BAL selector
  H PHASE control
  SC PHASE control
  SC PHASE selector
  SHUTTER switch
  BARS switch
  ABL switch

Recording audio

- When the CCU-M3/M3P is connected, the MIC IN connector on the camera adaptor cannot be used as an external microphone input. This is because the CCU-M3/M3P does not have a function to output an audio signal. For recording audio, connect a microphone to a VTR or a sound mixer.

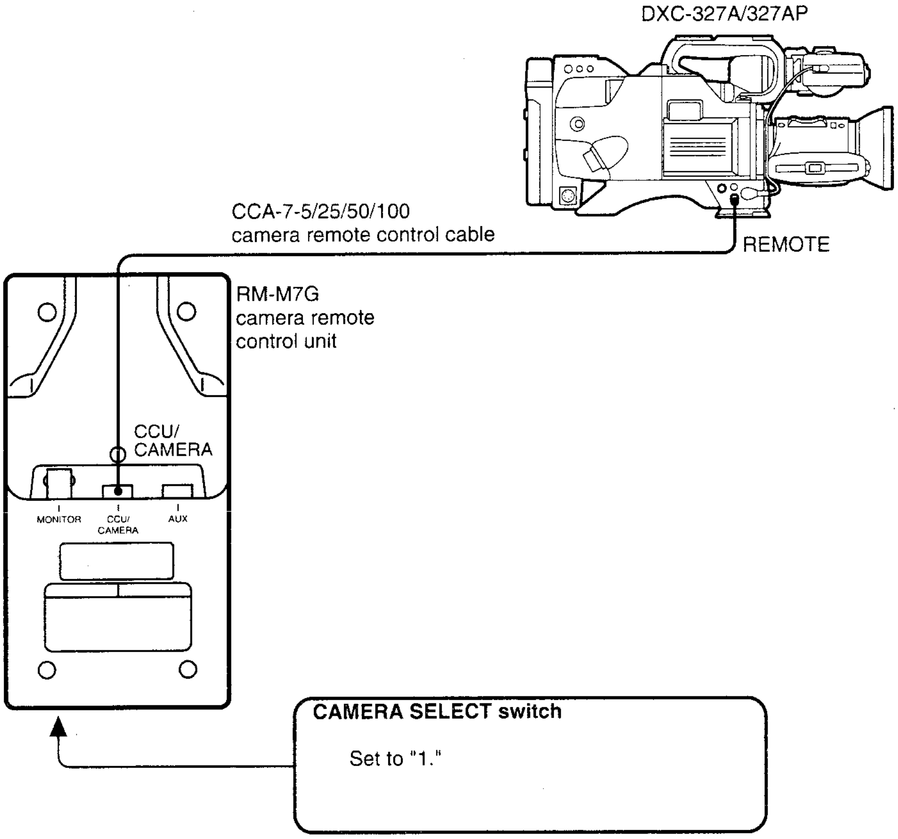
White/black balance adjustment

- When the W/B BALANCE selector on the CCU is set to PRESET or MANUAL, the CCU adjusts the white balance and takes priority over the setting done on the camera.
- If the W/B BALANCE selector is set to AUTO, the white balance can be adjusted using either the camera or CCU controls.
- Do automatic black balance adjustments by setting the W/B BALANCE selector on the CCU to AUTO or PRESET, and the AUTO W/B BAL switch on the camera to BLK.

Connections

Connecting a Remote Control Unit

By connecting an RM-M7G Remote Control Unit (optional), you can control the principal camera functions at a distance. For more details on using the remote control, consult your Sony dealer.


DXC-327A/327AP
CCA-7-5/25/50/100
camera remote control cable
REMOTE
RM-M7G
camera remote
control unit
CCU/
CAMERA
MONITOR
CCU/
CAMERA
AUX

CAMERA SELECT switch

Set to "1."

Notes on use with the RM-M7G

- Set the CAMERA SELECT switch on the RM-M7G to "1".
- When the camera is connected to a RM-M7G, the GAMMA and KNEE controls of the RM-M7G do not affect the video output signal neither the output signal from the TEST connector of the camera.
- The following switches on the camera do not function.
  GAIN selector
  WHITE BAL selector
  SHUTTER switch
  BARS switch
  ABL switch

Using the Camera with a VTR

When the DXC-327A/327AP is used with the CA-537/537P, the following VTRs can be used with this camera system.
Depending on the VTR connected to the camera, the switch setting on the camera adaptor, the usable cable, and the functions of the camera and the VTR vary.

Setting of the VTR SELECT switch on the CA-537/537P

Set the VTR SELECT switch on the CA-537/537P depending on the VTR to be connected. If the setting is not correct, video and audio signals may not be recorded normally.

Connected VTR	Setting of the VTR SELECT switch	Output video signal	Microphone output level
Sony BVU-150/150P, BVW-35/35P, VO-6800/6800PS	1	Composite	–60 dB
Sony VO-8800/8800PS	3	Y/C	–60 dB
VHS format VTR AG-6400 (Panasonic)	2	Composite	–20 dB
S-VHS format VTR AG-7400 (Panasonic)	3	Y/C	–20 dB

Notes

- When the VO-6800/6800PS portable VTR is connected to the camera, set the –20 dB/–60 dB camera microphone input selector on the VTR to –60 dB.
- When a CCU-M3/M3P/M7/M7P Camera Control Unit is used, be sure to set the VTR SELECT switch to "1".

Connections

Usable camera cables and power sources

Be sure to use the cable and AC power adaptor appropriate to the connected VTR.

Connected VTR	Connecting cable	Power supply from the VTR to the camera	AC power adaptor for the VTR
BVU-150/150P	CCZQ-nA	Yes	AC-500/500CE
VO-8800/8800PS		Yes	CMA-8A/8ACE
VO-6800/6800PS		Yes	CMA-8A/8ACE
AG-6400 (Panasonic)	CCZJ-2	No	CMA-8A/8ACE
AG-7400 (Panasonic)	CCZQ-nA	No	CMA-8A/8ACE

Note

When the AG-6400/7400 is used, an independent power source must be provided for the camera.

Differences in functions

Available functions differs depending on the VTR connected as shown below.

Connected VTR	Remote control of VTR start/stop	REC/TALLY indicator		BATT alarm indication	Audio monitor (on the camera)	Picture shown on the viewfinder	
		REC indication	VTR alarm			During recording (picture from the camera)	During playback (picture from the VTR)
BVW-35/35P	Yes	Yes	Yes	Yes	Yes	Yes	Yes
BVU-150/150P							
VO-6800/6800PS							
VO-8800/8800PS							
AG-6400 (Panasonic)			NO	NO	NO		
AG-7400 (Panasonic)					Yes		Yes[a]

[a] A picture from a VTR can be seen only when you press the RET button on the zoom lens.

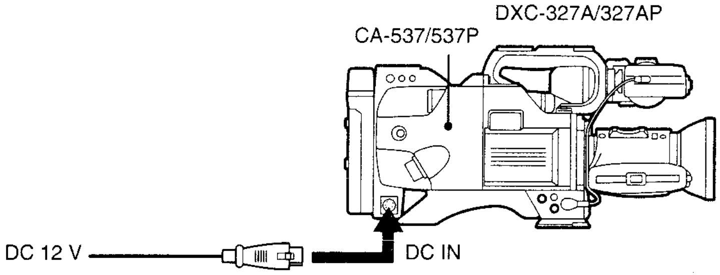
Power Sources

When the CA-537/537P Camera Adaptor is attached, the DXC-327A/327AP camera is powered by one of three types of power supply: external DC, battery DC, or AC power.

Using a DC Power Supply

Connecting to a DC power outlet

Connect a connecting cable from the DC IN connector on the camera adaptor or on a VTR to the external power source of 12 volts DC.



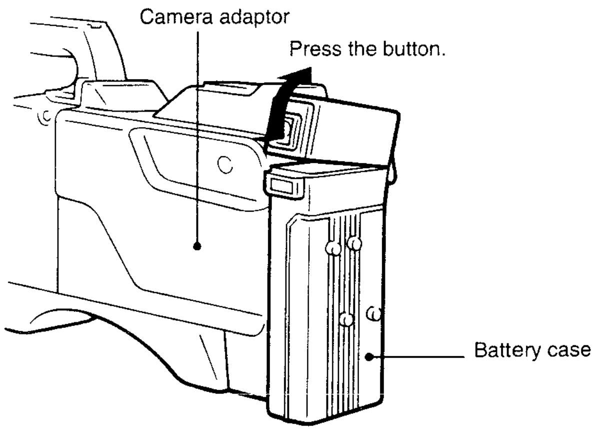
Power Sources

Using a Battery Pack

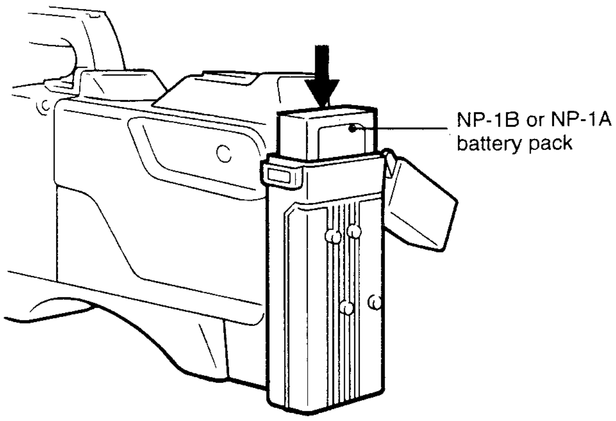
Before using the battery pack, recharge the battery (see “Charging the battery” on the next page).

Installing the battery pack

1 Press the button at the side of the battery case lid and pull open the lid.


Camera adaptor
Press the button.
Battery case

2 Slide the battery into the battery case with the arrow on the battery pack pointing downward.


NP-1B or NP-1A battery pack

Continuous battery operation time

When a camera adaptor is attached, the fully charged battery pack can continuously power the camera and viewfinder for a certain amount of time (see the table below). However, with the EVV-9000/9000P Videocassette Recorder attached, battery life is shortened.

Battery type	Battery life with CA-537/537P installed	Battery life with EVV-9000/9000P installed
NP-1B	About 135 minutes	About 85 minutes
NP-1A	About 100 minutes	About 65 minutes

Battery life warning

When the battery is nearly exhausted, the warning "BATT XX.XV" appears on the viewfinder screen showing the voltage level in the "XX.X". If you continue to operate the equipment without changing the battery, the BATT indicator of the viewfinder also lights up to indicate that the battery must be replaced immediately.

Charging the battery

Recharge the battery pack before each use using the battery charger shown in the table below.

Battery pack	Battery charger	Charging time
NP-1B	BC-1WB	About 95 minutes
NP-1A	BC-1WB or BC-1WA	About 70 minutes

Power Sources

Using Power Supplied Through the Camera Adaptor

To use the following equipment, make sure you have attached a CA-537/537P Camera Adaptor.

Using a portable VTR

Connect the VTR/CCU/CMA connector on the camera adaptor and the VTR 14-pin Q-type camera connector on the VTR using the optional CCZQ Camera Cable. Then the power is automatically supplied from the VTR to the camera.

For the power source for the VTR, refer to the operation manual for the VTR. See the connecting diagram for "Connecting a Portable VTR" (page 1-32.)

Note

Before operating the camera, make sure that the power supplied from the VTR to the camera is sufficient. If the power supply capacity of the VTR is not sufficient, the camera must be powered independently.

Note on the operating time

The continuous operating time depends on the operation on the VTR. Fast-forwarding or rewinding tape may reduce the operating time.

Battery life indication

The life of the batteries installed in the portable VTR is indicated by the BATT indicator on the viewfinder. If the BATT indicator starts flashing, replace the battery with the charged one. If the camera continues operating without replacing a battery, the BATT indicator will stay lit. On some VTRs, the battery life is not indicated. (See page 1-38.)

Using a CCU-M3/M3P and CCU-M7/M7P camera control unit

Connect the camera control unit and the VTR/CCU/CMA connector on the camera adaptor using the optional camera cable. Then the power is automatically supplied to the camera. (See page 1-34.)

Using a CMA-8A/8ACE camera adaptor

Connect the CMA-8A/8ACE Camera Adaptor and the VTR/CCU/CMA connector on the camera adaptor using the optional camera cable. Then the power is automatically supplied to the camera. (See page 1-33.)

Priority of power sources

When two or three power sources are simultaneously connected to the camera, the camera operation only uses one of the power supplies according to the numerical priority listed below (starting with DC power first). The other power sources are automatically cut off.

Type of power (priority)	**supplied (on the camera adaptor) via the**
1. DC power	DC IN connector
2. NP-1B or NP-1A battery	Battery pack compartment
3. AC power	VTR/CCU/CMA connector

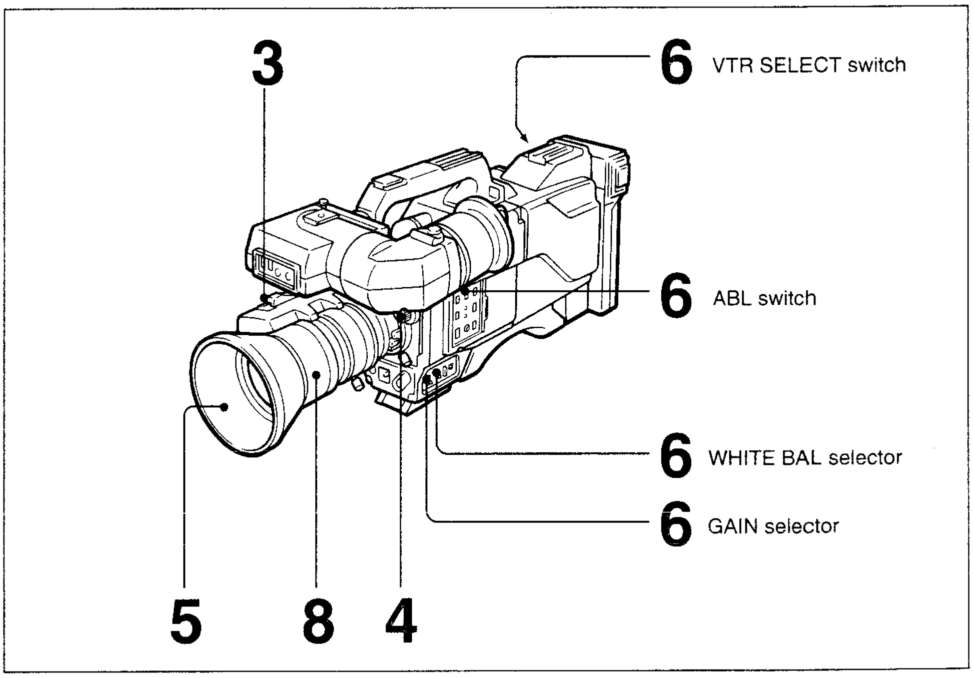
When the EVV-9000/9000P Hi8 format VTR or the PVV-1/1P Betacam format VTR is attached, the camera operates on one of the two types of power sources according to the numerical priority listed below.

Type of power (priority)	**supplied (on the VTR) via the**
1. DC power	DC IN connector
2. NP-1B or NP-1A battery	Battery pack compartment

Basic Operations

The following is the basic procedure for operating the camera. To get the most out of the videotaping operation, we recommend you do the adjustments and settings on the following pages.

Operating the Camera



1 Check that equipment connections, such as to the VTR, are correct (see pages 1-31 to 1-36.)

2 Turn the power switches to the camera and the all the connected equipment to the ON position.

3 Set the IRIS selector on the zoom lens to "A" (see page 1-54).

4 Select the appropriate position for the FILTER selector for the ambient lighting (see page 1-56).

5 Remove the lens cap.

6 Set the following switches:
ABL switch: OFF
GAIN selector: 0 dB
WHITE BAL selector: A or B (see page 1-59)
VTR SELECT switch (on the camera adaptor): corresponding to the VTR used

7 Point the camera at an object that is at least one meter (3 $^1/_2$ feet) from the lens.

8 Adjust the focus by turning the focus ring while looking at the image on the monitor or viewfinder screen.

Recording with a Portable VTR

1. Turn the power switches to the camera and connected equipment to the ON position.

2. Set the VTR to Record Standby mode.

3. Adjust the black balance and white balance. (For details on how to do this, see "Adjusting the Black Balance," page 1-57 and "Adjusting the White Balance," page 1-59.)

4. Point the camera at a reference object and adjust the lens.
   Adjust the Iris (see page 1-54)
   Zoom (see page 1-64)
   Close-Up Function (see page 1-67)
   Focus

5. To start recording, press the VTR button on the camera, the VTR START/RETURN VIDEO button on the camera adaptor, or the VTR button on the lens.
   The REC/TALLY indicator in the viewfinder lights up during recording.

6. To stop recording, press the VTR START/RETURN VIDEO button or the VTR button used in Step 5 above.

Recording with a Table-Top VTR

To record using a table-top VTR, follow the procedure explained for recording with a portable VTR except for the following:

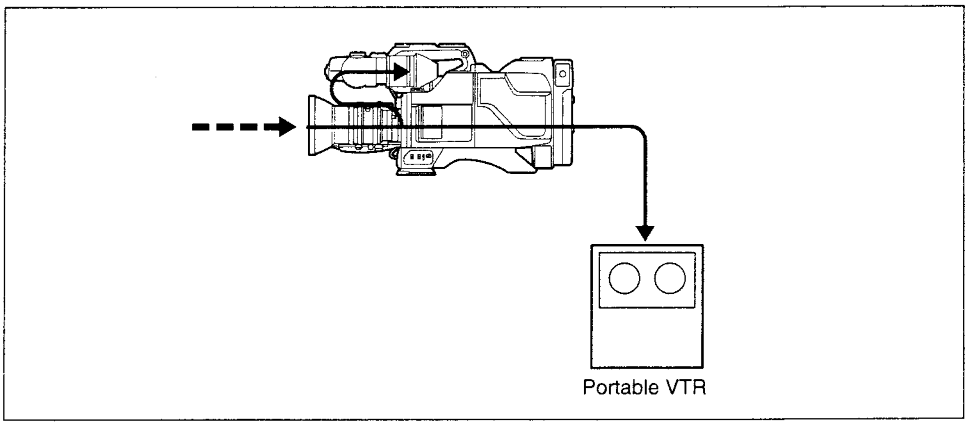
- Start and stop recording using the function buttons on the VTR.
- The REC/TALLY indicator in the viewfinder does not function.
- The return video and the playback picture cannot be monitored on the viewfinder screen.

Basic Operations

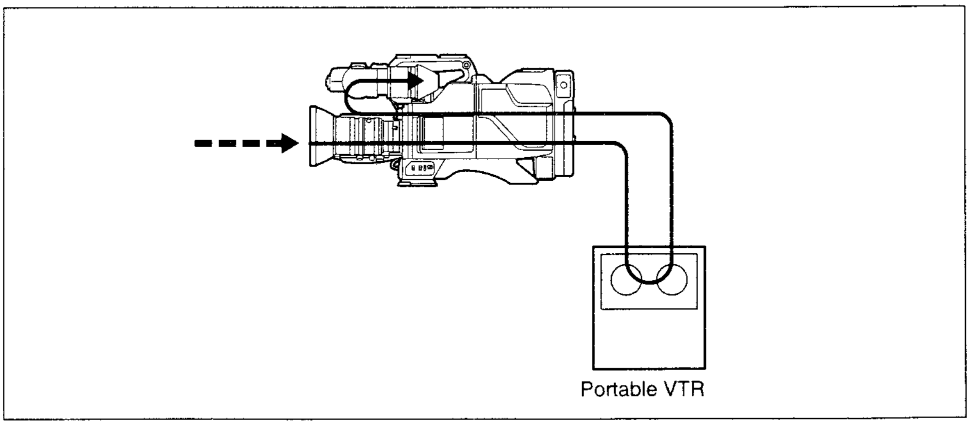
Monitoring the VTR Picture and Audio Output

You can see the following three types of images on the viewfinder screen when the camera and the VTR are connected with the CCZQ camera cable. Note, however, that with some types of VTRs, you may not be able to monitor a picture. (For more details on the pictures which can be seen on the viewfinder screen, see the "Differences in functions" on page 1-38).

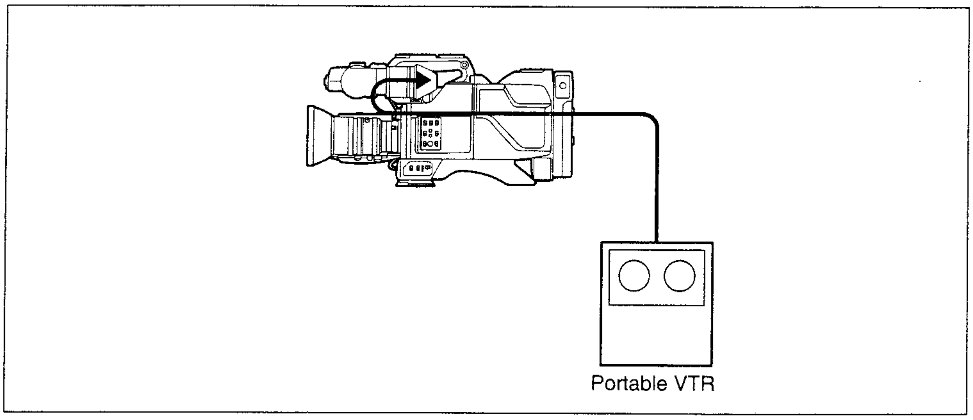
A picture picked up by the camera (during recording)



An E-E mode picture from the VTR (when the RET button on the lens is pressed during recording)



A playback picture (during playback)



Noise on the monitoring

While the playback picture from the VTR displays on the viewfinder screen, some of the video signals output from the camera such as the sync signal, may mix with the playback picture so that streaks of noise roll horizontally or vertically across the screen.

Monitoring the audio output

You can monitor the audio signal during recording and reviewing by connecting an earphone to the EARPHONE jack on the camera adaptor. Note, however, that with some types of VTR, you may not be able to monitor the audio output.

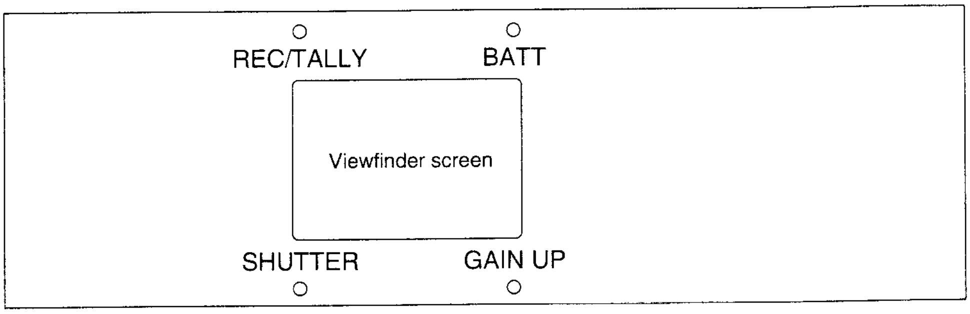
Adjustment and Settings

In the electronic viewfinder, the viewfinder screen itself shows you the settings of switches such as black/white balance and gain. At the periphery of the screen the viewfinder indicators show the status of operations such as battery level.

Reading Indications in the Electronic Viewfinder

Viewfinder screen and status indicators

Four indicators (see illustration below) correspond to the status of the camera and connected equipment.

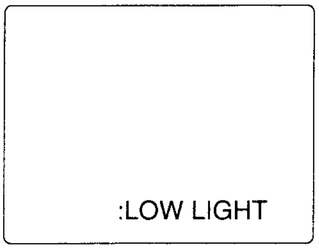


Indicator	Operates when...	Blinks	Lights up
REC/ TALLY	While recording, using a VTR connected with a CCZQ-A camera cable	Until the VTR enters the standby mode	During recording
	While using a VTR (equipped with a warning system), which is connected with a CCZQ-A camera cable	While the VTR is malfunctioning	–
	While using the CCU-M3/M3P	–	When a tally signal is transmitted from a video switcher, etc.
BATT	When the camera is powered by the battery pack	–	When the battery power becomes weak
	When a VTR is connected to the camera	When the battery power becomes weak	If you keep on operating the connected equipment after the indicator starts blinking
	When the CCU is connected to the camera1)		
SHUT-TER	Any time	–	When the SHUTTER switch of the camera is set to ON
GAIN UP	Any time	–	When the GAIN selector is set to 9 dB or 18 dB

1) The indicator's blinking speed denotes the following when the power is supplied to the camera from the battery installed in the CCU-M3/M3P:
Slow: The battery is weak.
Fast: The camera control units' switches and controls are being used.

Reading warning indications on the viewfinder display

Two indications, "LOW LIGHT" and "BATT 10.7V" appear on the viewfinder screen. The following explains what they mean and some possible remedies to the problems they indicate.



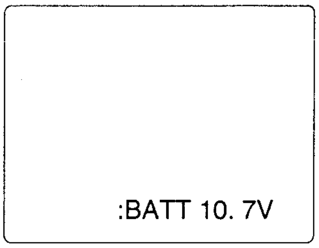
Meaning Lighting is insufficient.

Remedy
- Increase the ambient lighting.
- Open the iris manually or activate the automatic iris function.
- Select an appropriate filter.
- Set the GAIN selector to 9 dB or 18 dB.
- Set the SHUTTER switch to OFF.

It is possible to switch the "LOW LIGHT" indication on or off.

On: Press the UP/ON button when the character display is in the current camera setting (see next page) mode.

Off: Press the DOWN/OFF button when the character display is in the current camera setting (see next page) mode.



Meaning The input voltage to the camera is about 10.7 volts.

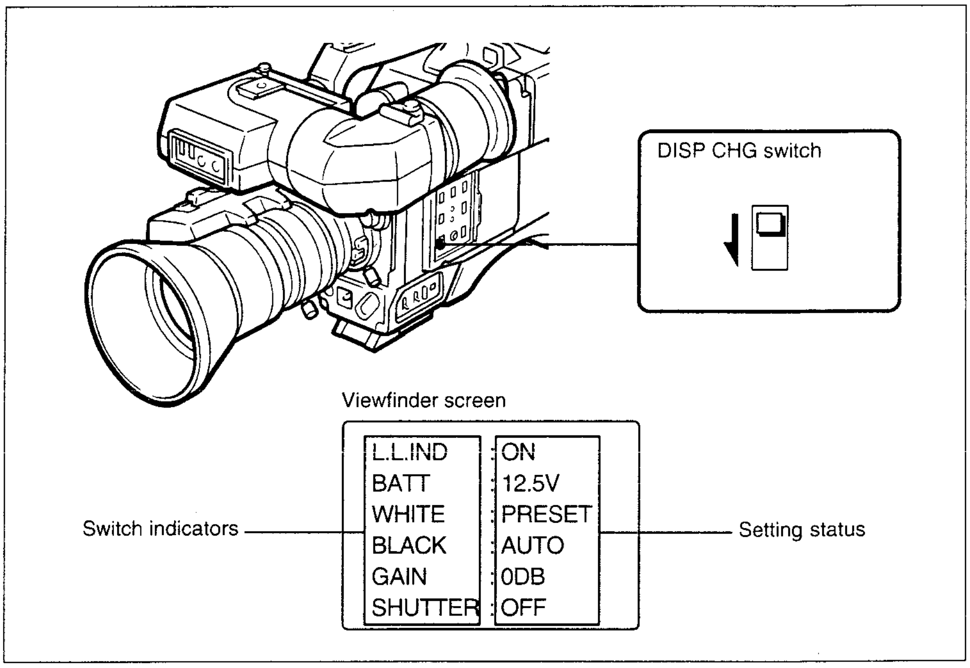
Remedy Replace the battery with a fully charged one.

If you continue recording with a weak battery, the quality of the recording will deteriorate.

Adjustment and Settings

Current settings

The viewfinder screen shows you the settings of the switches on the camera head, camera adaptor, and zoom lens. If necessary, change the settings using the procedures described in this section and the table below.
Press the DISP CHG switch several times until the following (see illustration below) display appears on the viewfinder screen.
The following table explains the meanings of the below screen display items.

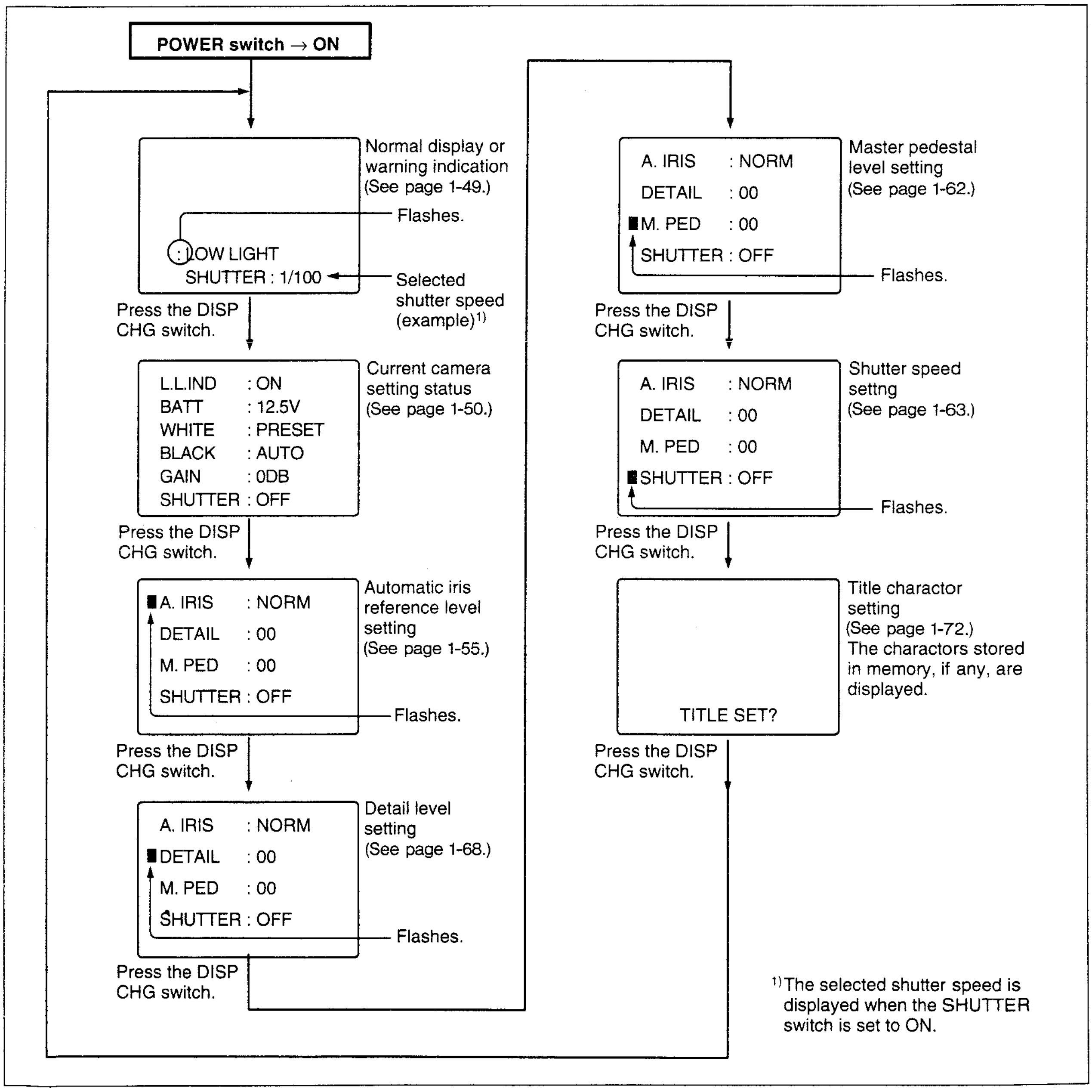


L.L.IND : ON
BATT : 12.5V
WHITE : PRESET
BLACK : AUTO
GAIN : 0DB
SHUTTER : OFF

Switch indicators	Meaning	Setting Status	Meaning
L.L. IND	Setting the “LOW LIGHT” indication	ON	“LOW LIGHT” is displayed.
		OFF	“LOW LIGHT” is not displayed.
BATT	Battery voltage	XX.XV	The battery voltage level is displayed.
WHITE	White balance adjustment mode	PRESET	For the factory preset value
		AUTO/A or AUTO/B	For automatic adjustment. (The white balance has been adjusted automatically using the volume stored in memory A or B.)
		MANUAL	For manual adjustment using the CCU-M7/M7P, CCU-M3/M3P Camera Control Unit, or RM-M7G Camera Remote Control Unit.
BLACK	Black balance adjustment mode	AUTO	For automatic adjustment
		MANUAL	For manual adjustment using the CCU-M7/M7P, CCU-M3/M3P Camera Control Unit, or RM-M7G Camera Remote Control Unit.
GAIN	Setting the video output level	0 DB, 9 DB, 18 DB	The video output level is 0 dB, 9 dB or 18 dB.
SHUTTER	Setting the shutter speed	OFF	The shutter speed cannot be changed.
		Shutter speed set	The set shutter speed is displayed.

Reading the Viewfinder Screen Display Menu

The following chart shows how the display changes on the screen each time you press the DISP CHG switch.
In all modes, the black balance and white balance can be adjusted automatically. The display mode changes to the black balance or white balance adjustment mode during adjustment and returns to the selected display after the adjustment is complete.


POWER switch → ON
Normal display or warning indication (See page 1-49.)
Flashes.
⊙: LOW LIGHT
SHUTTER : 1/100
Selected shutter speed (example)[1]
Press the DISP CHG switch.
L.L.IND : ON
BATT : 12.5V
WHITE : PRESET
BLACK : AUTO
GAIN : 0DB
SHUTTER : OFF
Current camera setting status (See page 1-50.)
Press the DISP CHG switch.
■A. IRIS : NORM
DETAIL : 00
M. PED : 00
SHUTTER : OFF
Automatic iris reference level setting (See page 1-55.)
Flashes.
Press the DISP CHG switch.
A. IRIS : NORM
■DETAIL : 00
M. PED : 00
SHUTTER : OFF
Detail level setting (See page 1-68.)
Flashes.
Press the DISP CHG switch.
A. IRIS : NORM
DETAIL : 00
■M. PED : 00
SHUTTER : OFF
Master pedestal level setting (See page 1-62.)
Flashes.
Press the DISP CHG switch.
A. IRIS : NORM
DETAIL : 00
M. PED : 00
■SHUTTER : OFF
Shutter speed settng (See page 1-63.)
Flashes.
Press the DISP CHG switch.
TITLE SET?
Title charactor setting (See page 1-72.) The charactors stored in memory, if any, are displayed.
Press the DISP CHG switch.

[1] The selected shutter speed is displayed when the SHUTTER switch is set to ON.

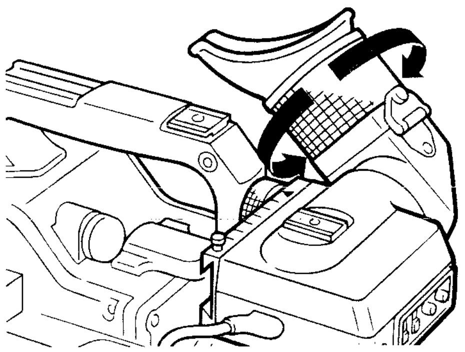
Adjustment and Settings

Adjusting the Viewfinder Screen Display

After adjusting the viewfinder and the eye cup, make the following adjustments so that the viewfinder screen can be seen comfortably.
Note, however, that none of these settings affect the video output signal of the camera.

Adjusting the diopter

Because each eyesight of each individual is different, it may be necessary to adjust the diopter when a new camera operator uses the viewfinder.



1. Focus the lens.
2. Turn the diopter ring (see illustration above) within the range of –1D to –3D until the view is clear.
   The adjustable range can be changed to that of +1D to –1D.

Adjusting the contrast and brightness on the viewfinder

1. Set the BARS switch on the camera to ON.
2. Adjust the contrast and brightness using the CONTR and BRIGHT controls on the viewfinder while referring to the color bar signals on the viewfinder screen.
3. Set the BARS switch to OFF after adjustment.

Adjusting the sharpness on the viewfinder

Set the PEAKING switch on the viewfinder to ON.
The image on the viewfinder screen sharpens so that the lens can be focused easily.

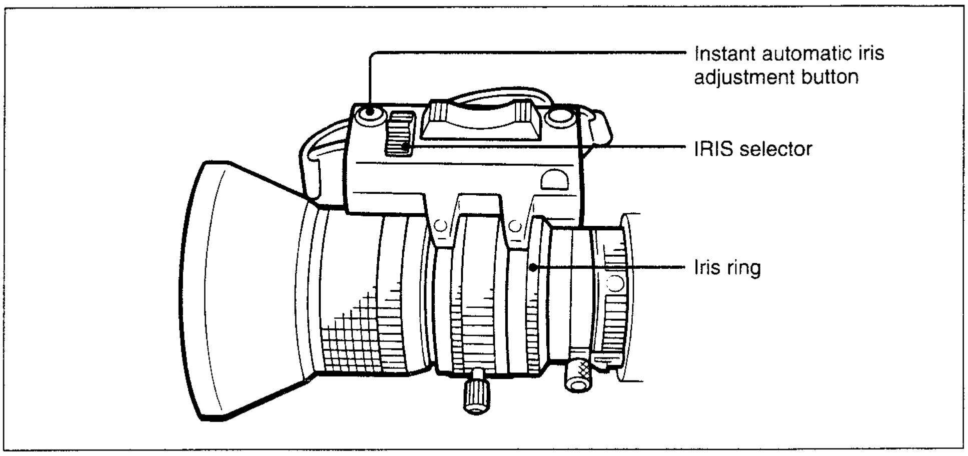
Adjusting the Video Monitor

When you are using a color video monitor to monitor the video output, adjust the color on the monitor using the procedure that follows. (See the section, "Connecting an S-VHS Format Portable VTR" on page 1-31 for information on how to connect a video monitor and a VTR.)

1. Set the BARS switch to ON.
2. Adjust the color and hue controls on the monitor while viewing the color bars on the monitor screen.
3. Set the BARS switch to OFF.

Adjustment and Settings

Adjusting the Iris



Automatic iris adjustment

Set the IRIS selector to "A." This is the normal setting for the automatic iris. This setting makes the iris automatically adjust to the brightness of the object being shot.

Adjusting the iris manually

Use manual adjustment when recording an object against a bright sky or a scene with high contrast.
Set the IRIS selector to "M."

Using the zebra pattern for iris adjustment
The zebra pattern appears on the portion of the screen where the video output is about 70 to 80 IRE (NTSC) or 490 to 560 mV (PAL). This pattern acts as a reference when you manually adjust the iris. (For the procedure, see "Checking the Video Level," page 1-69.)

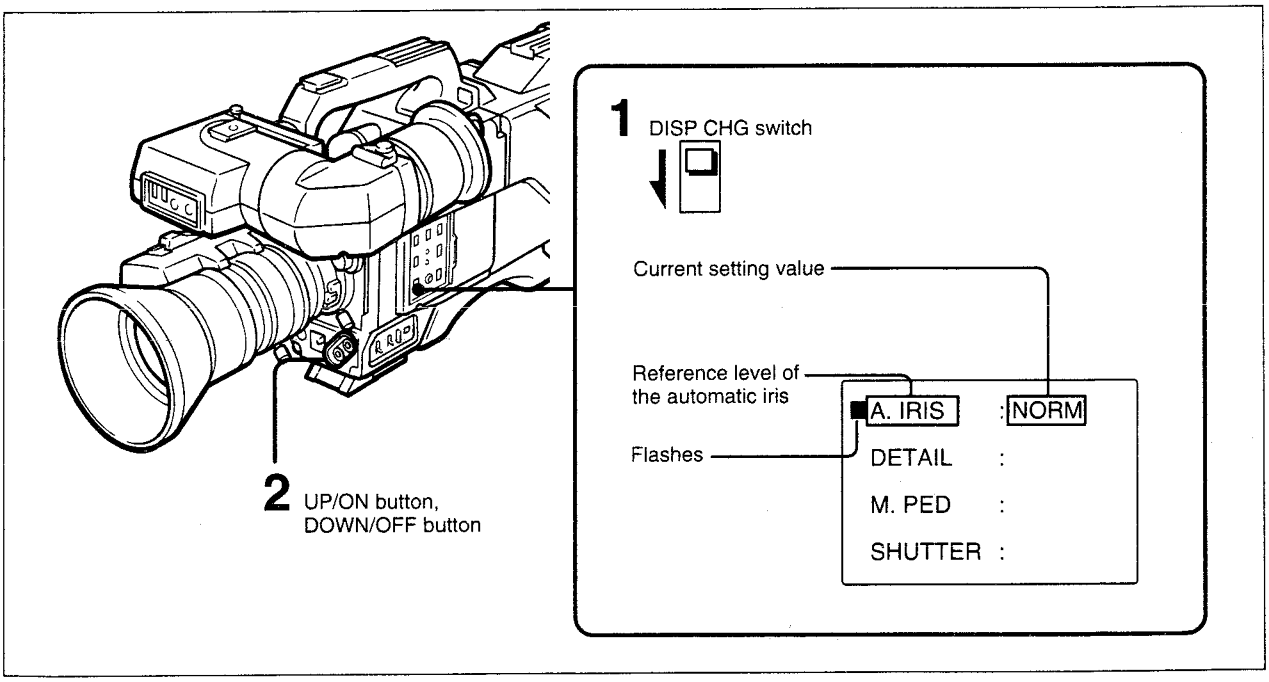
Temporary automatic adjustment

1. To automatically adjust the iris while the IRIS selector is set to "M", keep the Instant Automatic Iris Adjustment (IAIA) button depressed.
2. To fix the iris value that was set in Step 1, release the IAIA button. The iris remains fixed at this value until it is manually adjusted again.

Selecting the automatic iris reference level

When adjusting the video level of a back-lit subject, you can change the automatic iris reference level setting. When you make the setting, it is retained in the memory of the camera.

The selectable values are as follows:
- –1.0
- –0.5
- NORMAL (reference value)
- 0.5
- 1.0


1 DISP CHG switch
Current setting value
Reference level of the automatic iris
Flashes
2 UP/ON button, DOWN/OFF button

A. IRIS :NORM
DETAIL :
M. PED :
SHUTTER :

1 To select the automatic iris reference level, press the DISP CHG switch several times until the above display appears on the viewfinder screen.

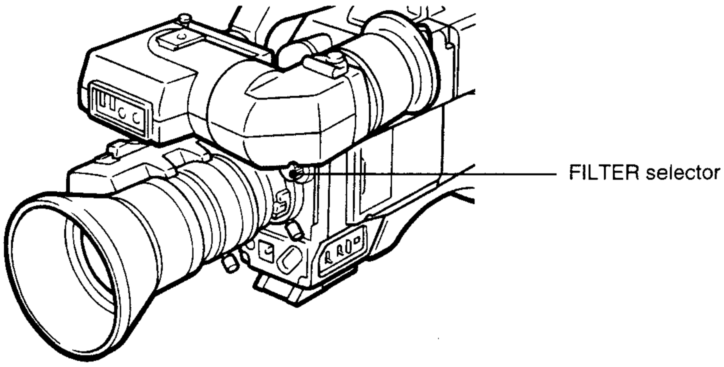
2 Select the setting value (from –1.0 to 1.0).
To raise the value: Press the UP/ON button
To lower the value: Press the DOWN/OFF button
To reset to NORMAL: Press the UP/ON and DOWN/OFF buttons simultaneously

Note

When you connect the CCU-M7/M7P, CCU-M3/M3P Camera Control Unit, or RM-M7G Camera Remote Control Unit to the camera, change the automatic iris reference level using the controls on the CCU-M7/M7P, CCU-M3/M3P, or RM-M7G. The controls on the camera do not operate this function.

Selecting the Filter

The color temperature changes according to lighting conditions. To compensate for this, use one of the color temperature conversion filters indicated in the table below. Turn the dial (see illustration below) to the correct filter number.



Filter number	Color temperature	Lighting conditions
1	3200K	Iodine lamp, sunrise or sunset
2	5600K + $^1/_{16}$ND[1]	Bright outdoor
3	5600K	Cloudy or rainy

[1] ND: Neutral Density

Using an ND filter

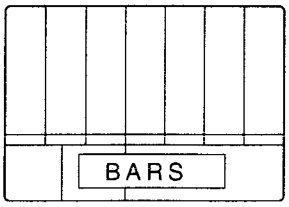
Exceptionally bright scenes such as a sunny day at the beach or snow-covered terrain will look “washed out” when videotaped. To videotape these scenes naturally, use an ND filter and set the FILTER selector to the “2” position. Use the above table as a guide for selecting the correct filter.

Adjusting the Black Balance

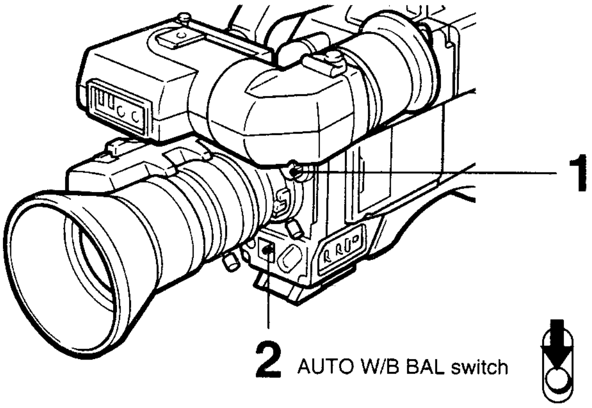
Adjust the black balance to ensure picture clarity and life-like color reproduction. When adjusting the black balance, the black set is adjusted simultaneously. The adjusted black balance value is retained in the memory of the camera and you need not re-adjust it later except for the cases mentioned later:

Before You Begin

- Check that the W/B BALANCE switch on the camera control unit is not set to MANUAL. If it is set to MANUAL, you cannot adjust the black balance from the camera.
- Set the BARS switch to OFF so that the normal video signal outputs. If the video camera is outputting a color bar signal, you cannot adjust the black balance. If you try to do so, the viewfinder screen displays the following message over the color bars:



Adjusting black balance



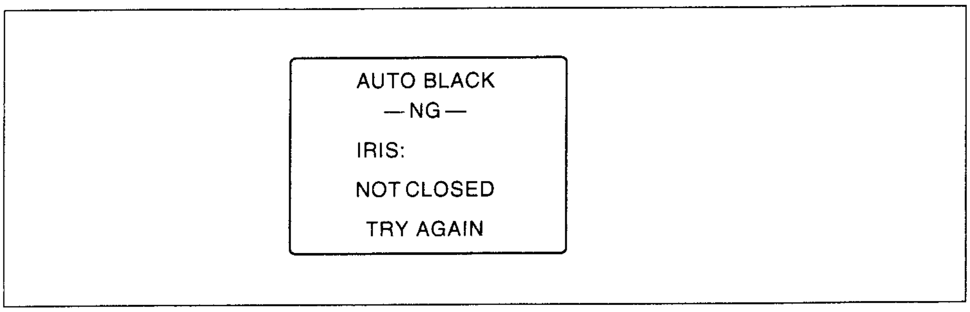
1 Select an appropriate filter with the FILTER selector.

2 Flip the AUTO W/B BAL switch to the BLK position, and when you hear a click, release the switch.
"AUTO BLACK -OP-" appears on the viewfinder screen during adjustment, and "AUTO BLACK-OK-" appears on the viewfinder screen when adjustment is complete.

Adjustment and Settings

If black balance cannot be done

The characters shown below are displayed on the viewfinder screen.



```
AUTO BLACK
  — NG —
IRIS:
NOT CLOSED
TRY AGAIN
```

When black balance adjustment is complete

During black balance adjustment, the iris is automatically closed. If the IRIS selector is set to “M”, you must open it manually to open it again.

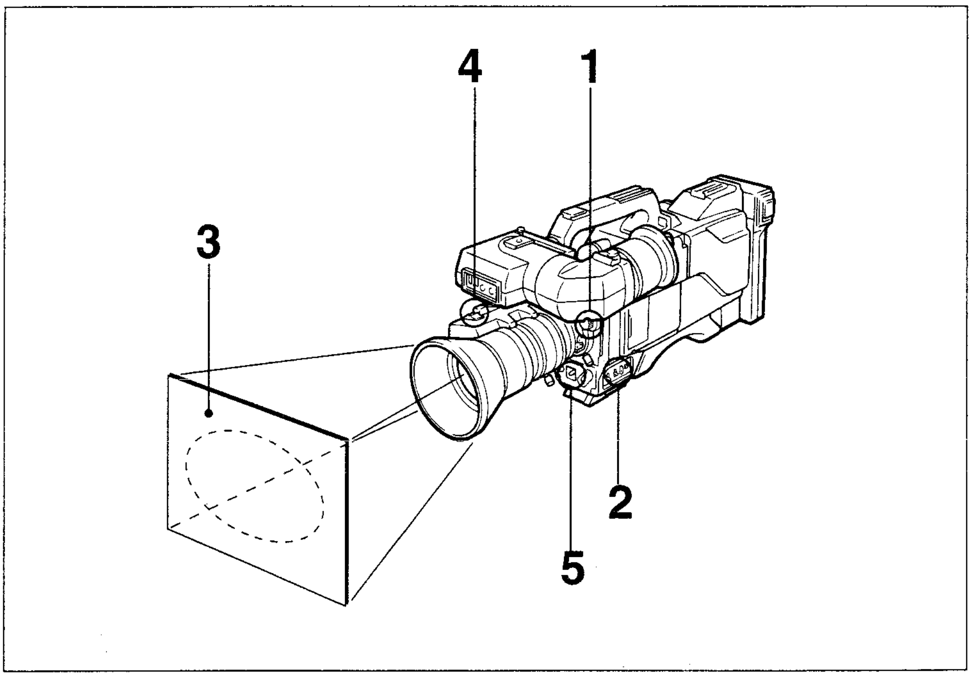
Re-adjust the black balance

The adjusted value is stored on the camera, and is kept even when the power is turned off. Normally readjustment is not required except for the following cases.

- “MEMORY NG” appears on the viewfinder screen.
- The camera has not been used for a long time.
- The ambient temperature has changed radically.

Adjusting the White Balance

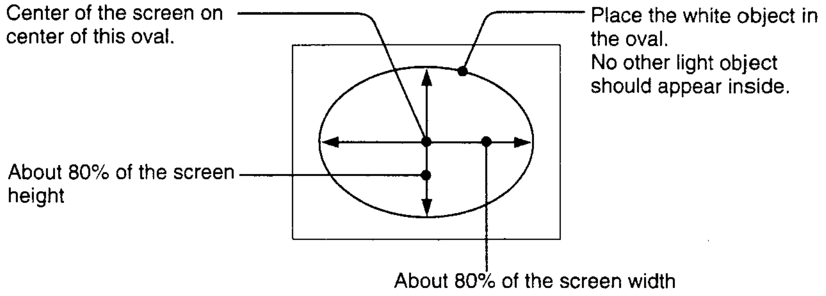
The white balance should be adjusted so that a white object is reproduced as white and life-like color is obtained. The white balance changes depending on the lighting conditions.
The camera has two memories, A and B, in which to store the adjusted white balance values. You can store two adjusted values under two different lighting conditions and recall either of the values according to ambient conditions.



1. Select the position of the FILTER selector on the camera head according to lighting conditions.

2. Set the WHITE BAL selector to “A” or “B”.

3. Zoom up on a white object such as a white cloth or paper with the same lighting conditions as those for shooting. The minimum white area required for adjustment is as follows:


Center of the screen on center of this oval.
Place the white object in the oval.
No other light object should appear inside.
About 80% of the screen height
About 80% of the screen width

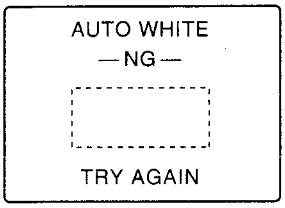
Adjustment and Settings

4 Set the IRIS selector on the lens to “A”.

5 Press the AUTO W/B BAL switch to the WHT position. When you hear a click, release the switch.
“AUTO WHITE -OP-” appears on the display screen during adjustment, and “AUTO WHITE -OK-” appears on the viewfinder screen when adjustment ends. The camera stores the adjusted white balance value in the selected memory.

When the white balance cannot be adjusted automatically

The following characters appear on the screen display if white balance cannot be adjusted automatically. Re-adjust the white balance after taking the measures required in the chart below.



AUTO WHITE
— NG —

TRY AGAIN

Display	Causes and measures
LOW LIGHT	Light is insufficient. Add illumination or raise the video output level with the GAIN selector.
??	The object is not white or very bright light appears in the picture. Change the object to an appropriate one.
C. TEMP. LOW CHG. FILTER	Color temperature is too low. Select the appropriate filter with the FILTER selector.
C. TEMP. HI CHG. FILTER	Color temperature is too high. Select the appropriate filter with the FILTER selector.
WHITE: PRESET	When the WHITE BAL selector is set to the PRE position. Set to the A or B position.
WHITE: MANUAL	When the CCU is connected, and the manual white balance adjustment is selected on the CCU. Select to the automatically adjust.
BARS	When the color bar signal is output. Set the BARS switch to “OFF” position.

When you have no time to adjust the white balance

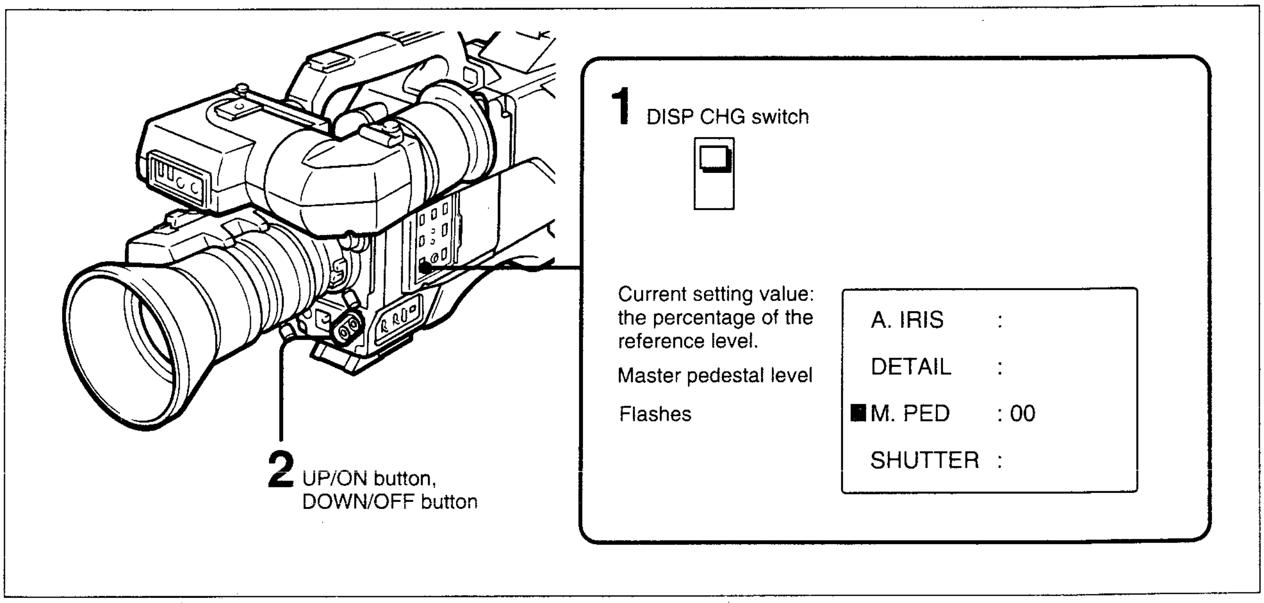
1. Select the appropriate filter with the FILTER selector on the camera depending on the lighting conditions.
2. Set the WHITE BAL selector to PRE.
   You can obtain the approximate white balance.

Readjustment

The adjusted value is kept even if the power is turned off. So readjustment is not required.

Adjusting the Contrast

To adjust the contrast, change the pedestal level. When the master pedestal level is raised, the dark portion of the picture brightens, and when the level is lowered, the corresponding portion darkens. You can change the level from about –30% to +30% of reference level (0.7 V) in increments of 1%. The adjusted master pedestal level is kept in the memory of the camera.


1 DISP CHG switch
Current setting value: the percentage of the reference level.
Master pedestal level
Flashes
A. IRIS :
DETAIL :
■M. PED : 00
SHUTTER :
2 UP/ON button, DOWN/OFF button

1 Press the DISP CHG switch several times until the display above appears on the viewfinder screen.

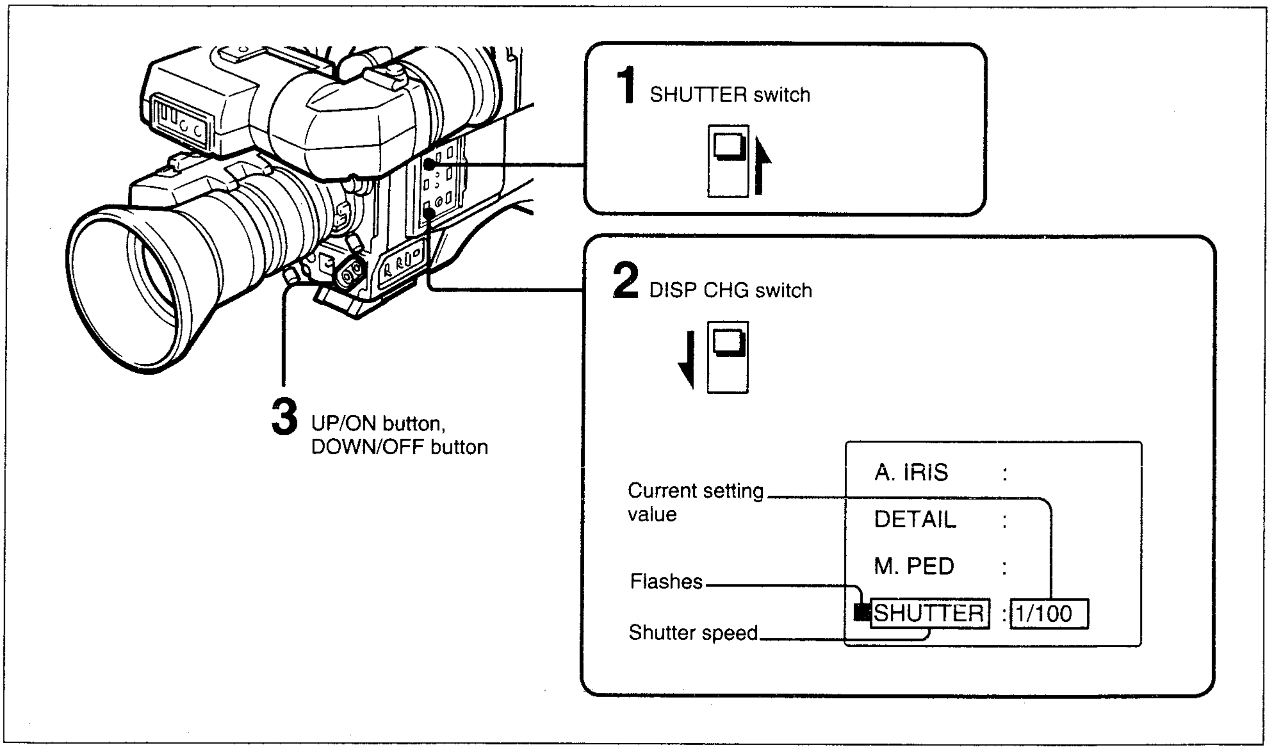
2 Change the master pedestal.
To raise the level: Press the UP/ON button on the camera head.
To lower the level: Press the DOWN/OFF button on the camera head.
To reset the level to the reference level: Press the UP/ON and DOWN/OFF buttons simultaneously.

Notes

- If the CCU-M7/M7P, CCU-M3/M3P Camera Control Unit or RM-M7G Camera Remote Control Unit is connected to the camera, set the master pedestal level from the CCU or RM-M7G. It cannot be set on the camera.
- To check the master pedestal level on a waveform monitor during adjustment, set the ABL switch on the camera to OFF. When the ABL switch is set to ON, appropriate waveform will not appear on the monitor screen.

Selecting the Shutter Speed

The shutter speed is factory set to 1/100 for NTSC and 1/60 for PAL. You can change the shutter speed if necessary. Select the shutter speed from the following:
For NTSC: 1/100, 1/250, 1/500, 1/1000, 1/2000
For PAL: 1/60[1], 1/250, 1/500, 1/1000, 1/2000.
Your selection is retained in the memory of the camera.


1 SHUTTER switch
2 DISP CHG switch
3 UP/ON button, DOWN/OFF button
Current setting value
Flashes
Shutter speed
A. IRIS :
DETAIL :
M. PED :
SHUTTER : 1/100

1 To change the shutter speed, set the SHUTTER switch on the camera to ON.

2 Press the DISP CHG switch several times until the display above appears on the display screen.
If the SHUTTER switch is set to OFF, "OFF" appears at the current setting value.

3 Select the shutter speed.
To increase the shutter speed value: Press the UP/ON button on the camera head.
To decrease the value: Press the DOWN/OFF button on the camera head.
To reset the value to 1/100 (for NTSC) or 1/60 (for PAL): Press the UP/ON and DOWN/OFF buttons simultaneously.

---

[1] When you are using the RM-M7G to control the camera, the 1/100 setting on the RM-M7G sets the camera shutter speed to 1/60 and "1/60" appears on the screen display in the viewfinder. This is to prevent flickering when you are shooting a CRT screen.

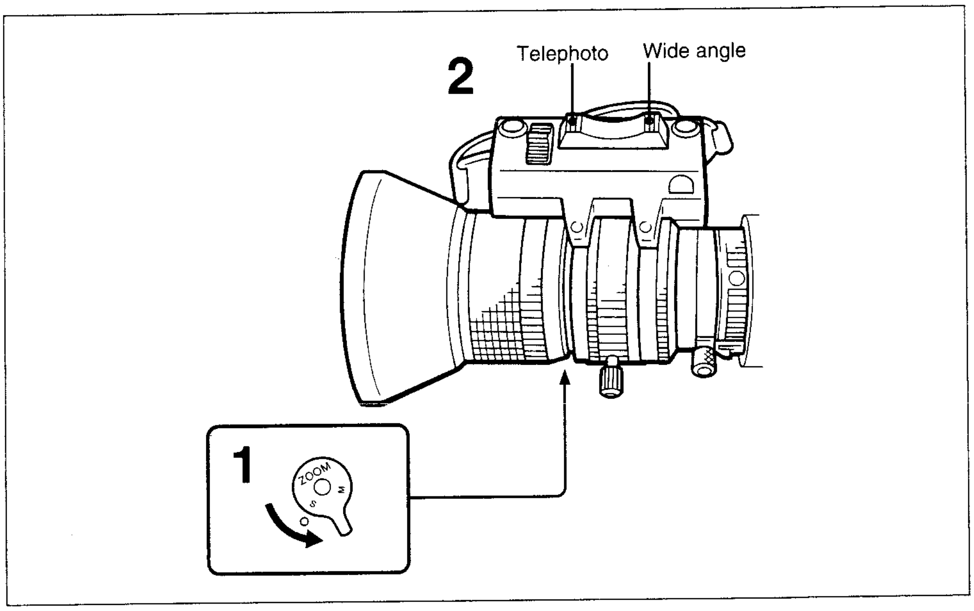
Advanced Operations

Zoom Operation

You can go from wide angle to telephoto shots by using the motorized zoom or doing the zoom manually.

Motorized zoom

Zooming at a constant speed is obtained.

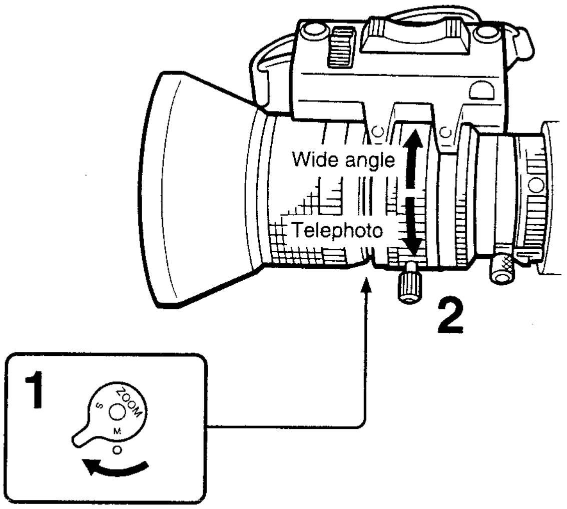


1 Set the ZOOM selector to the “S” (servo) position.

2 Press either end of the motorized zoom switch.
To zoom faster, press all the way down on the motorized zoom switch. Press the switch lightly to zoom more slowly.

Manual zoom

Manual zoom allows more precise control over the zooming speed.



1 Set the ZOOM selector to the "M" (manual) position.

2 Position the Manual zoom lever to the appropriate angle.

Tips on using the zoom

Correct focusing

If the subject is in focus in the telephoto position, it will remain in focus when you zoom back to wide angle.

For a more stable picture

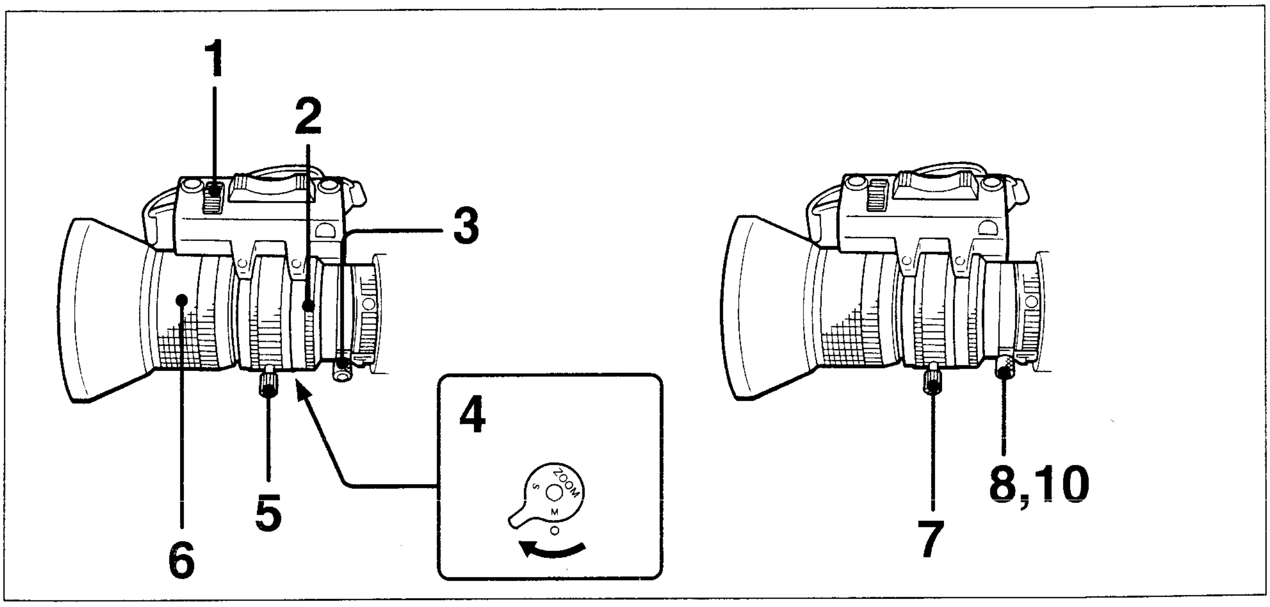
We recommend placing the camera on a tripod when using the zoom. If you zoom with the camera on your shoulder, stand as steadily as possible.

Positioning the object at the center of the screen

For zoom-in, adjust the focus in the telephoto position, and set to the wide angle position. Then start to zoom in. Make sure that the object stays at the center of the screen while you are using the zooming.

Adjusting Flange Focal Length

The proper flange focal length adjustment ensures that the object is in focus both at the wide-angle and telephoto position when using the zoom. Once you have made the flange focal length adjustment, you do not have to re-adjust the lens as long as the lens stays on the same camera.



1 To adjust the focal flange, set the IRIS selector to M.

2 Set the iris ring to 1.4.
Position the supplied chart for iris adjustment and illuminate the chart so that the proper video level is reached when the iris ring is at 1.4.

3 Loosen the screw on the Ff adjustment ring.

4 Set the ZOOM selector to M.

5 Turn the manual zoom lever to 90, telephoto position.

6 Turn the focus ring until the chart is in focus at about three meters (10 feet) from the lens.

7 Turn the manual zoom lever to 7.5, wide-angle position.

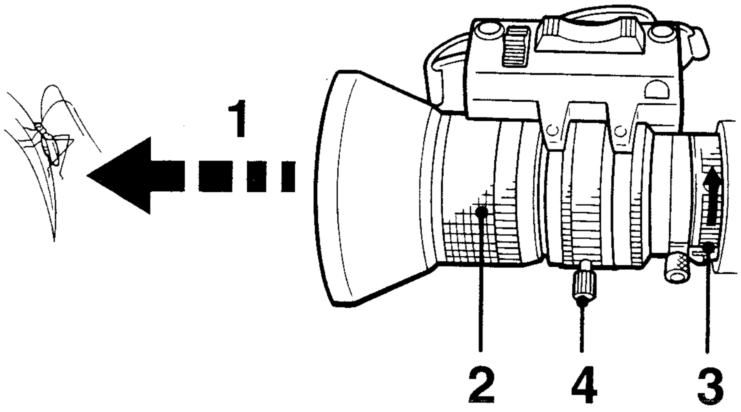
8 Turn the Ff adjustment ring and focus on the chart used in Step 6.
Do not turn the focus ring for focusing.

9 Repeat Steps 5 through 8 until the chart is in focus both at the telephoto position and at the wide-angle position.

10 Tighten the screw on the Ff adjustment ring firmly.

Doing Close-Ups

The close-up or macro function lets you zoom in flowers, insects and even photographs. The minimum distance from the lens to the object is 10 mm in the 7.5 wide-angle zoom position.



1. Adjust the distance between the lens and the object to get the desired image size.
2. Set the focus ring to the ∞ (infinity) setting.
3. Turn the MACRO ring until it stops while pushing the button in the direction of the MACRO arrow.
4. Focus on the object by turning the manual zoom lever with the ZOOM selector set to M.
5. When the close-up operation is complete, return the MACRO ring to its original position.

To reduce the object size on the screen

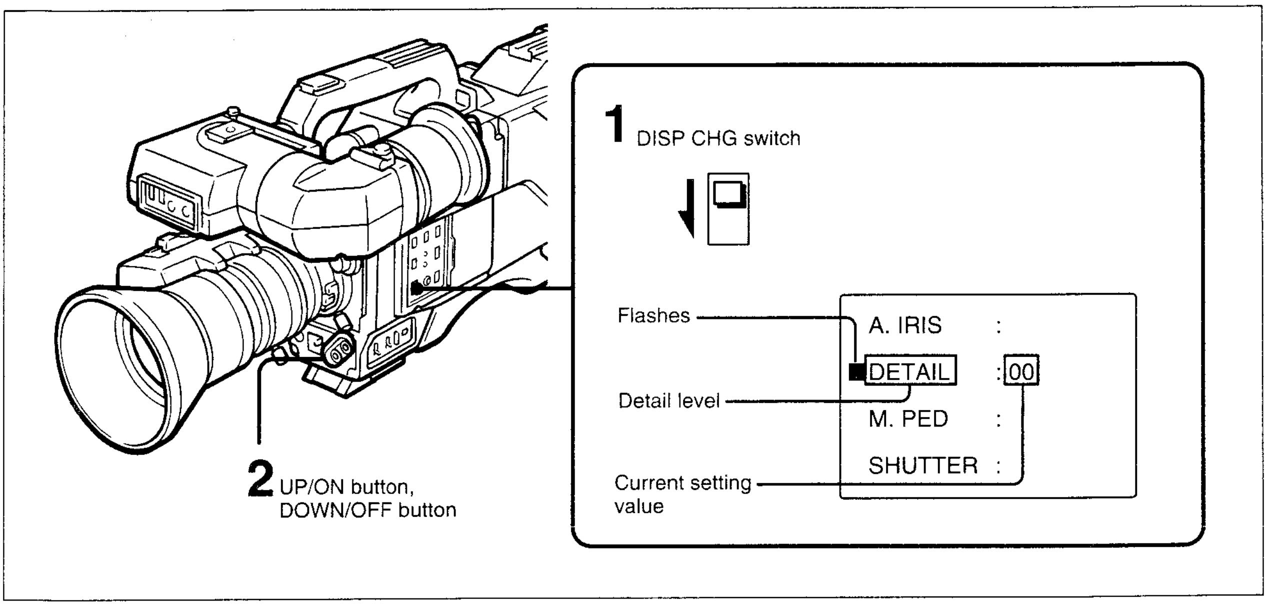
Adjust the focus following steps 1 through 4 above, then turn the MACRO ring slightly toward its original position and adjust the focus with the manual zoom lever again.

Note on the focus ring

If the focus ring is set to ∞ (infinity) while the MACRO ring is turned to "MACRO," the focus can be continually adjusted from the close-up position to ∞ (infinity) with the manual zoom lever.

Adjusting the Sharpness of the Picture

You can increase (harden) or decrease (soften) the sharpness of the picture. Change the value of the detail level to increase or decrease the sharpness. The detail level can be set from –99 to +99 of the factory-set reference level (00).


1 DISP CHG switch
Flashes
Detail level
Current setting value
A. IRIS :
DETAIL :00
M. PED :
SHUTTER :
2 UP/ON button, DOWN/OFF button

1 Press the DISP CHG switch several times until the above display appears on the viewfinder.

2 Change the value of the detail level.
To increase the value: Press the UP/ON button on the camera head.
To decrease the value: Press the DOWN/OFF button on the camera head.
To reset the value to the reference level: Press the UP/ON and DOWN/OFF buttons simultaneously.

Note

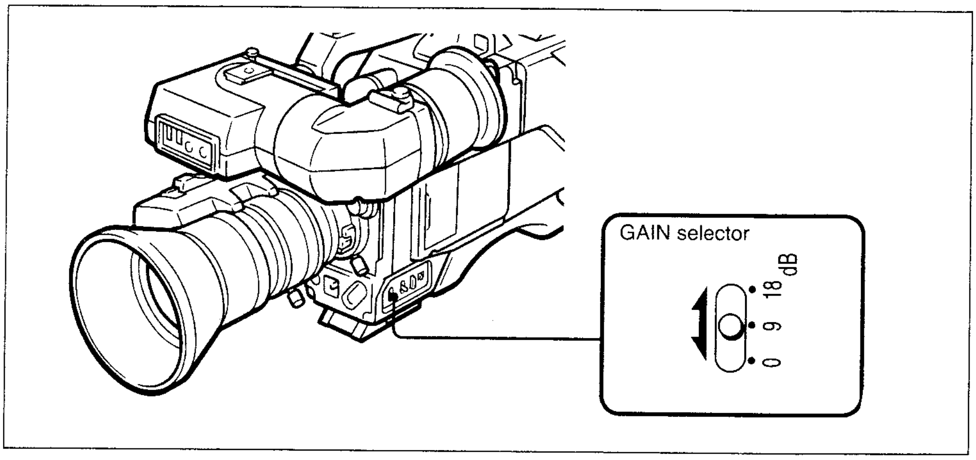
If you increase the video output level when you increase the detail level, the noise in the picture increases.

When using the RM-M7G

When the RM-M7G Camera Remote Control is connected to the camera, the detail level can be changed from the RM-M7G.

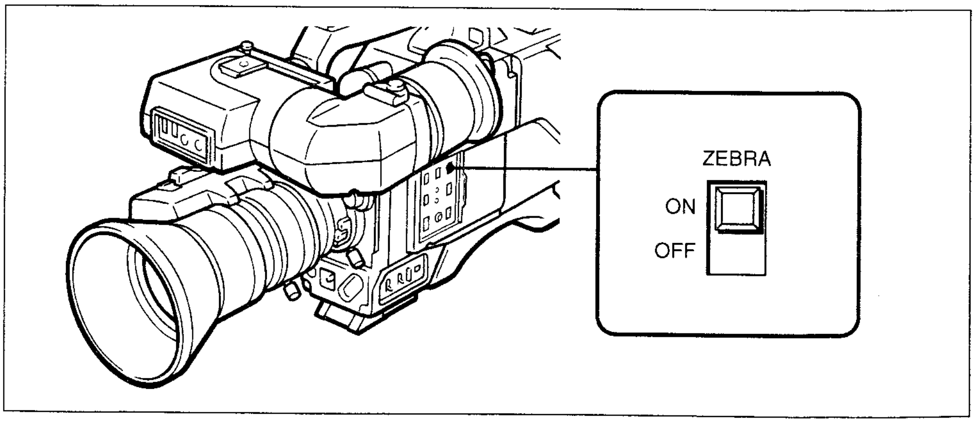
Selecting the Output Level

If you cannot get a clear picture because of insufficient light, set the GAIN selector to a higher or lower position. (The GAIN selector is normally set to "0 dB".)
The video output level can be raised by 9 dB by setting the GAIN selector to "9 dB" and by 18 dB by setting the selector to "18 dB".



Checking the Video Level

Use the zebra pattern (generated by the camera) as a reference when adjusting the iris manually. The zebra pattern indicates areas of the picture where the video level is approximately 70% to 80% (for NTSC) or 490 mV to 560 mV (for PAL): When the ZEBRA switch is set to ON, a zebra pattern appears on the part of the viewfinder screen where the video output level is 70 to 80 IRE or 490 to 560 mV. Adjust the iris so that the zebra pattern appears over the subject being shot (for example, the face of a back-lit person).
If it is not necessary to use the zebra pattern to adjust the iris, set the ZEBRA switch to OFF.



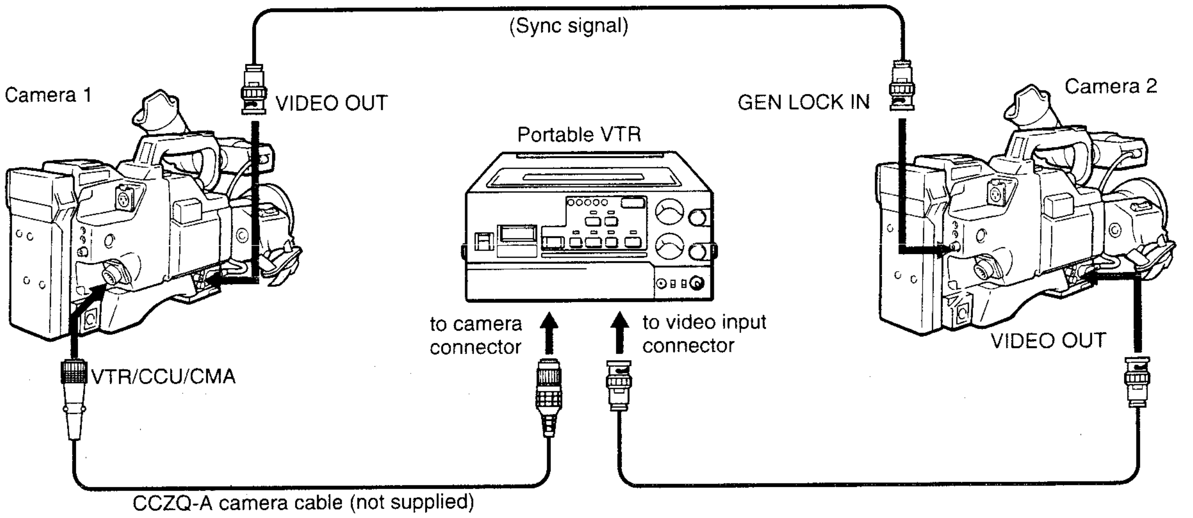
Advanced Operations

Synchronizing Two or More Cameras (Without Using a Camera Control Unit)

When a BS or VBS signal is connected to the GEN LOCK IN connector on the camera adaptor, the camera synchronizes with the connected signal. Use the GEN LOCK IN connector when you are using two or more cameras without a camera control unit. (See the illustrations below for sample connections.)

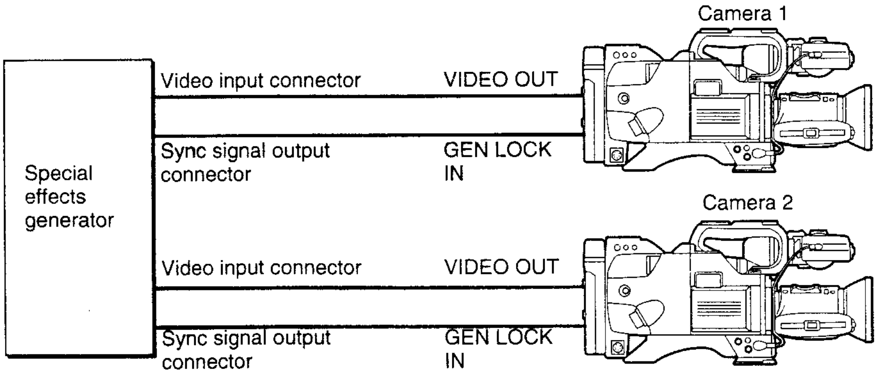
Connecting two cameras or more cameras to a VTR

Camera 2 synchronizes with Camera 1.


(Sync signal)
Camera 1
VIDEO OUT
GEN LOCK IN
Camera 2
Portable VTR
to camera connector
to video input connector
VIDEO OUT
VTR/CCU/CMA
CCZQ-A camera cable (not supplied)

Connecting two or more cameras and a special-effects generator

Camera 1 and Camera 2 synchronize with a special-effects generator.


Camera 1
Video input connector
VIDEO OUT
Sync signal output connector
GEN LOCK IN
Special effects generator
Camera 2
Video input connector
VIDEO OUT
Sync signal output connector
GEN LOCK IN

Adjustment of the picture tone for two or more cameras

When two or more cameras are used simultaneously in connection with a special-effects generator, supply each camera with the same reference signal and adjust each camera to get the same picture tone. Adjust the SC (subcarrier) phase and the H (horizontal) phase following the procedures described below.

Subcarrier phase adjustment

Adjust the subcarrier phase roughly with the SC PHASE selector, and make fine adjustment using the SC PHASE control. Use a vectorscope to make the adjustment easily.

Horizontal phase adjustment

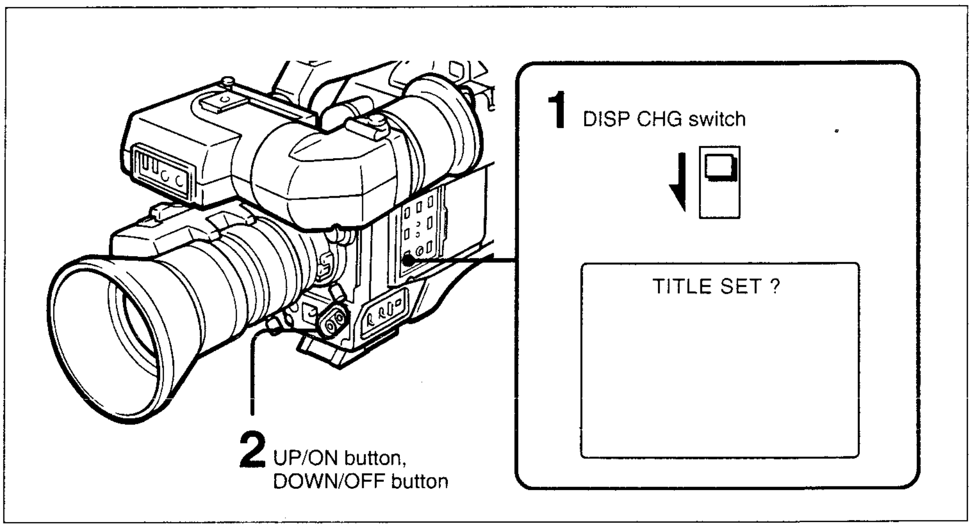
Adjust the horizontal phase with the H PHASE control. Use a waveform monitor or an oscilloscope to make the adjustment easily.

Advanced Operations

Title Characters Setting

This camera contains a built-in character generator that allows you to superimpose characters over the picture being shot. Both the picture and the superimposed characters appear on the monitor screen. If a recording VTR is connected to the camera, the superimposed characters can be recorded on the VTR.

Preparation



1 Press the DISP CHG switch several times until the above indication appears on the viewfinder display screen.

2 To put the camera into the title setting mode, press the UP/ON button.

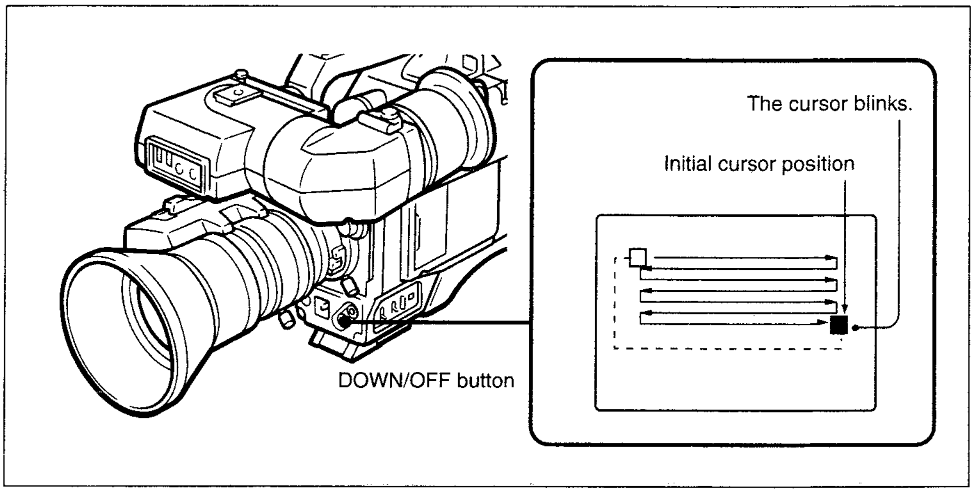
To clear all the memorized characters

Press the UP/ON and DOWN/OFF buttons at the same time.

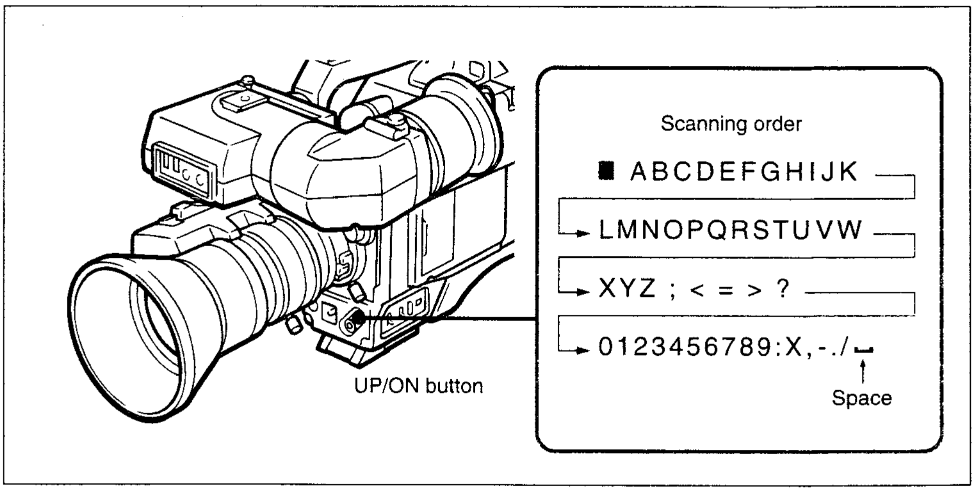
Setting procedure

Set title characters one by one choosing them from the display using the UP/ON and DOWN/OFF buttons. Up to 12 characters can display on one line. Up to 4 lines can be displayed. Title characters, once set, remain in the memory of the camera, and are not erased when the power is turned off.

Moving the cursor


The cursor blinks.
Initial cursor position
DOWN/OFF button

Setting title characters


Scanning order
■ ABCDEFGHIJK
LMNOPQRSTUVW
XYZ ; < = > ?
0123456789:X,-./␣
Space
UP/ON button

1 To set characters and letters from the display, press the UP/ON button repeatedly until the cursor flashes on the character you want to set.
To change the characters in reverse alphabetical order
While pressing the UP/ON button, press the DOWN/OFF button.

2 Press the DOWN/OFF button to set the selected character.
The cursor moves one space to the right.

3 Repeat the above steps 1 to 2 to set all the characters.

Advanced Operations

To replace a character

Return the cursor to the position of the character you want to replace, select the desired character with the UP/ON button, and press the DOWN/OFF button. The characters must be changed one by one as described in the above procedure.

To move the cursor to the right

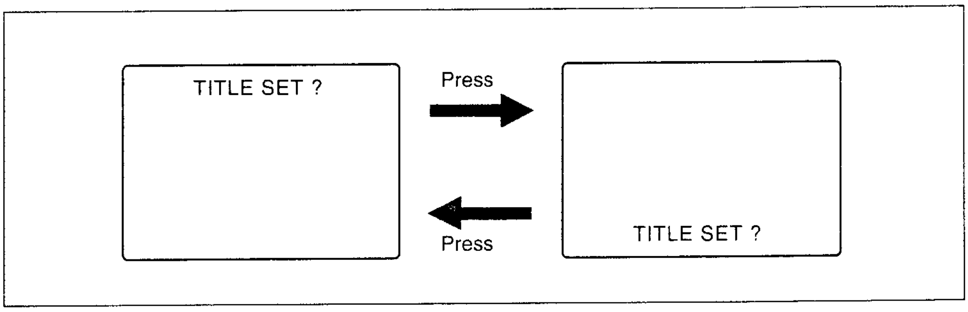
Press the DOWN/OFF button repeatedly.

To move the cursor to the left

While pressing the UP/ON button, press the DOWN/OFF button repeatedly.

To change the position of the title characters

Press the DOWN/OFF button



- If you are using a VO-8800/8800P portable VTR, do not use the upper character display area because the VTR tape remaining time shows here. Use only the lower character display area.

To exit character setting mode

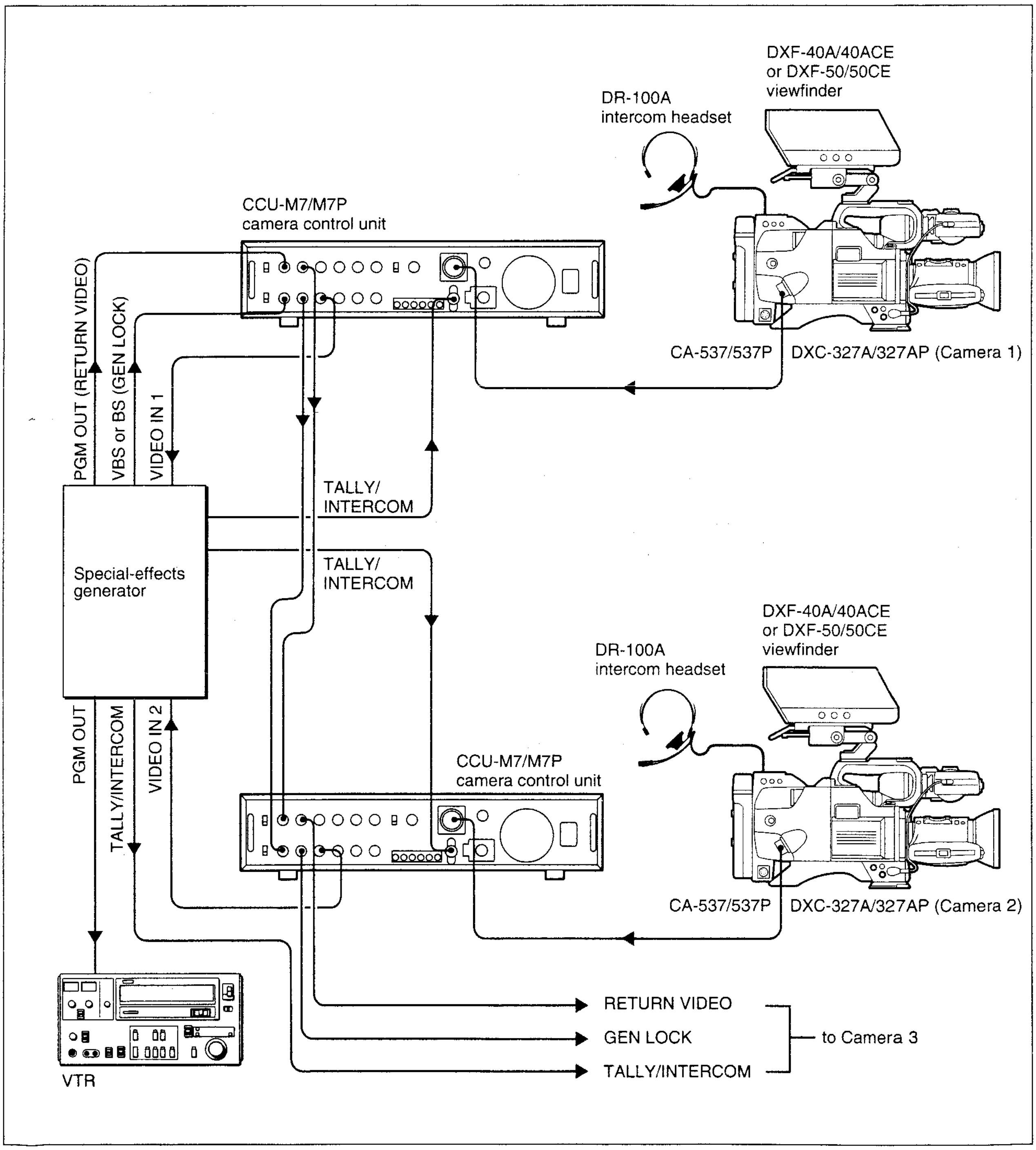
Press the DISP CHG switch.

The next time you use the camera

When you turn on the camera, the memorized characters are displayed on the viewfinder screen at step 1 of "Preparation" (see page 1-72). To display the characters on the monitor screen and output them to the VTR, press the UP/ON button.

Using the Camera in a Studio

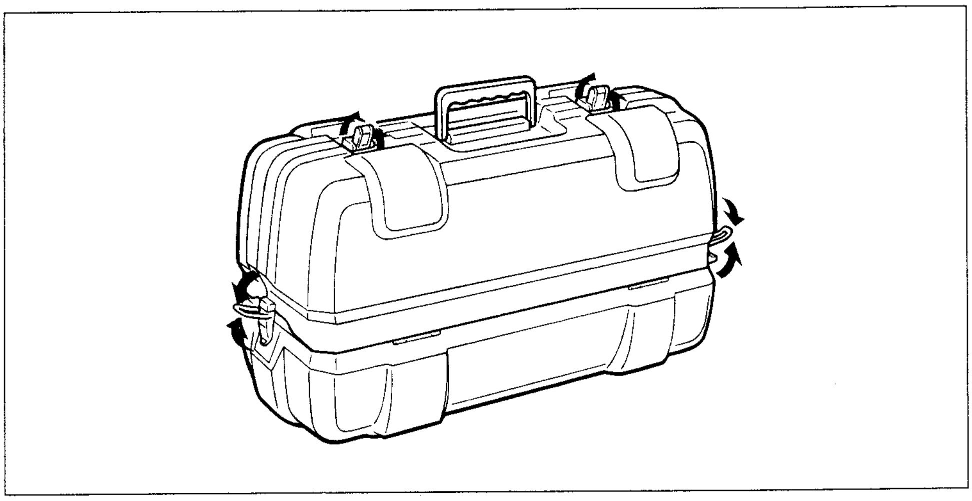
When you are using more than two cameras simultaneously in a video studio, you need a special-effects generator, such as the Sony SEG-2550, to do wipe effects and switching between equipment. You also need a CCU-M7/M7P Camera Control Unit to match picture quality and color between cameras (see "Connecting a Camera Control Unit" on page 1-34.)


DXF-40A/40ACE
or DXF-50/50CE
viewfinder
DR-100A
intercom headset
CCU-M7/M7P
camera control unit
PGM OUT (RETURN VIDEO)
VBS or BS (GEN LOCK)
VIDEO IN 1
CA-537/537P
DXC-327A/327AP (Camera 1)
TALLY/
INTERCOM
Special-effects
generator
TALLY/
INTERCOM
DXF-40A/40ACE
or DXF-50/50CE
viewfinder
DR-100A
intercom headset
PGM OUT
TALLY/INTERCOM
VIDEO IN 2
CCU-M7/M7P
camera control unit
CA-537/537P
DXC-327A/327AP (Camera 2)
RETURN VIDEO
GEN LOCK
TALLY/INTERCOM
to Camera 3
VTR

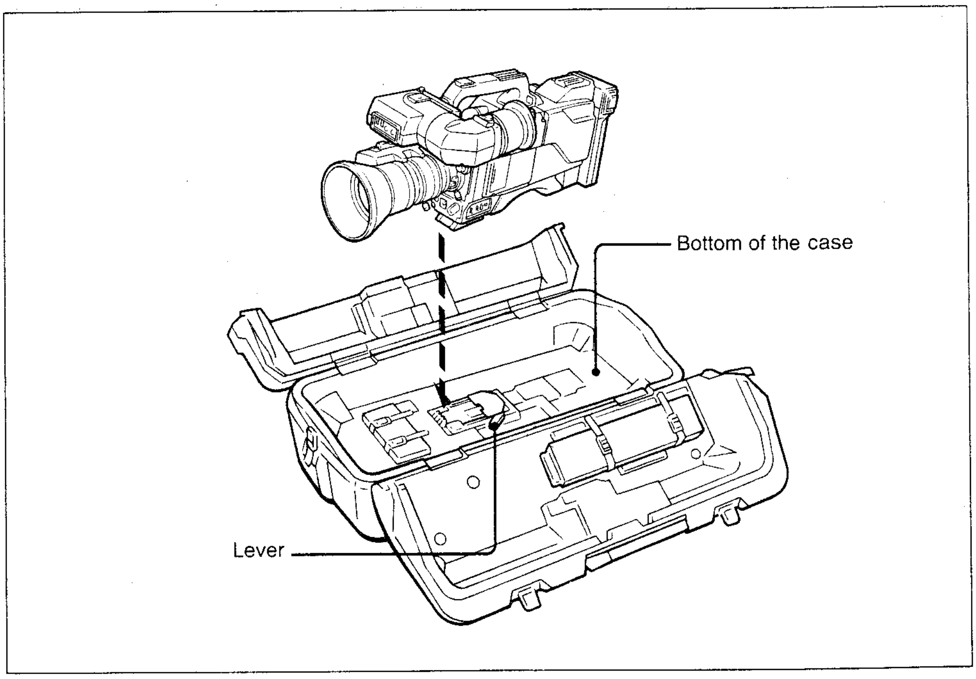
Handling the Carrying Case

Opening the carrying case

To open the camera carrying case, release the four catches at the edge of the case, then open the case from the upper part.



Packing the camera in the case



1. Align the camera to the attachment on the bottom of the case.

2. Slide the camera forward and fasten the camera to the case by pulling the lever with the red button pressed.

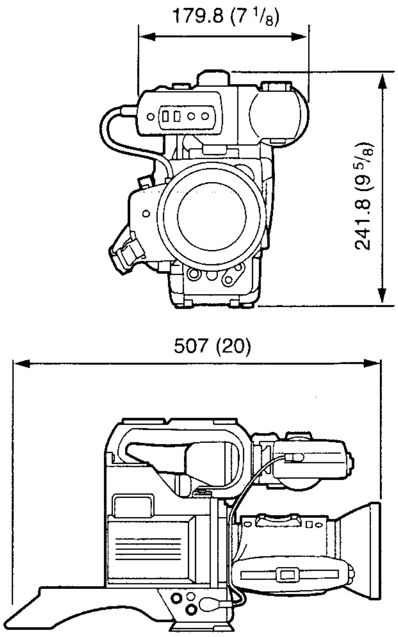
Note

The camera cannot be packed in the carrying case with the VTR other than the EVV-9000/9000P attached to the camera head.

Specifications

Camera Head DXC-327A/327AP

Image device	Interline-transfer CCD, 3-chip
Effective picture elements	768 x 494 (h/v) (NTSC) 752 x 582 (h/v) (PAL)
Sensing area	6.4 mm x 4.8 mm (equivalent to a $^{1}/_{2}$-inch pickup tube)
Built-in filters	1: 3200K 2: 5600K + $^{1}/_{16}$ ND 3: 5600K
Lens mount	Bayonet mount
Signal system	EIA standards, NTSC color system (for DXC-327A) CCIR standards, PAL color system (for DXC-327AP)
Scanning system	525 lines, 2:1 interlace, 30 frames/sec.(NTSC) 625 lines, 2:1 interlace, 25 frames/sec. (PAL)
Scanning frequency	
Horizontal	15.734 kHz (NTSC) 15.625 kHz (PAL)
Vertical	59.94 Hz (NTSC) 50.00 Hz (PAL)
Sync system	Internal External with the BS or VBS signal supplied to the GEN LOCK IN connector (when the CA-537/537P, CA-327/327P is used) or the reference signal input to the VTR/CCU/CMA connector from the GEN LOCK connector of the CCU-M3/M3P/M7/M7P (when the CA-537/537P is used)
Horizontal resolution	700 lines (center)
Minimum illumination	7.5 lx with F1.4, +18 dB
Sensitivity	2000 lx with F8.0 (Typical) at 3200K
Gain selection	0 dB, 9 dB or 18 dB, selectable
Video output	
Composite signal	1.0 Vp-p, sync negative, 75 ohms, unbalanced
Y/C separate signal	Y: 1.0 Vp-p, sync negative, unbalanced C: burst level 0.286 Vp-p (NTSC) 0.3 Vp-p (PAL) without sync
Signal to noise ratio	62 dB (NTSC, Typical) 60 dB (PAL, Typical)
Registration	0.05% for Zone I 0.05% for Zone II 0.05% for Zone III
Inputs/Outputs	VIDEO OUT: BNC-type, 75 ohms, unbalanced LENS: $^{2}/_{3}$-inch lens connector (6-pin) VF: 8-pin REMOTE: 10-pin
Power requirements	12 V DC
Power consumption	8 W
Operating temperature	–5°C to +45°C (23°F to 113°F)
Storage temperature	–20°C to +60°C (–4°F to 140°F)
Weight	about 2 kg (4 lb 6 oz)
Dimensions	See the illustrations below.



Unit: mm (inches)

Camera Adaptor CA-537/537P (Optional)

For details, refer to the CA-537/537P operating instructions.

Inputs/Outputs	VTR/CCU/CMA connector: Sony Z-type, 26-pin DC IN: XLR-type, 4-pin, male MIC IN: XLR-type, 3-pin, female GEN LOCK IN: BNC-type, 75-ohms, unbalanced EARPHONE: mini jack INTERCOM: mini intercom
Power requirements	12 V DC
Power consumption	1.7 W
Operating temperature	−10°C to +45°C (14°F to 113°F)
Storage temperature	−20°C to +60°C (−4°F to +140°F)
Weight	About 1.3 kg (2 lb 14 oz)
Dimensions	118 x 205 x 118 mm (w/h/d) (4 $^{3}/_{4}$ x 8 $^{1}/_{8}$ x 4 $^{3}/_{4}$ inches)

Zoom Lens VCL-712BX

Focal length	7.5 mm to 90 mm
Zoom	Manual and motorized, selectable Zooming ratio: 12x
Maximum aperture ratio	1:1.4
Iris control	Manual and auto, selectable 1.4 to 16 and C (closed)
Range of object field (at the distance of 1.1 meter)	
W (wide angle)	660 x 880 mm (26 x 34$^{3}/_{4}$ inches)
T (telephoto)	55 x 73 mm (2 $^{1}/_{4}$ x 3 inches)
Minimum object distance	1.1 m (3 $^{3}/_{4}$ inches)
Filter thread	72 mm dia., 0.75 mm-pitch
Mount	Bayonet mount, $^{2}/_{3}$ inch
Weight	About 1.2 kg (2 lb 10 oz) with hood
Dimensions	About 110 mm dia. x 189 mm (4 $^{3}/_{8}$ x 7 $^{1}/_{2}$ inches)

Viewfinder DXF-501/501CE

Picture tube	1.5-inch monochrome
Indicators	REC/TALLY indicator BATT indicator SHUTTER indicator GAIN UP indicator
Resolution	550 lines
Power requirements	12 V DC
Power consumption	2.3 W
Weight	About 500 g (1 lb 2 oz)
Dimensions	About 182 x 68 x 205 mm (w/h/d) (7$^{1}/_{4}$ × 2$^{3}/_{4}$ × 8$^{1}/_{8}$ inches)

Carrying Case LC-420

Weight	About 7.7 kg (17 lb)
Dimensions	About 790 x 440 x 340 mm (w/h/d) (31 $^{1}/_{8}$ x 17 $^{3}/_{8}$ x 13 $^{1}/_{2}$ inches)

Accessories Supplied

VCL-712BX zoom lens (supplied with the DXC-327AK/327APK only) (1)
DXF-501/501CE electronic viewfinder (supplied with the DXC-327AK/327APK/327AL/327APL only) (1)
LC-420 carrying case (supplied with the DXC-327AK/327APK/327AL/327APL only) (1)
VCT-12 tripod attachment (supplied with the DXC-327AK/327APK/327AL/327APL only) (1)
Lens cap (1)
Chart for flange focal length adjustment (1)

Design and specifications are subject to change without notice.

Optional Accessories and Recommended Equipment

Lens and Accessories

Zoom lens: VCL-712BX
Lens remote control unit: LO-23
Tripod attachment: VCT-12

Camera Adaptor

Camera adaptor: CA-537/537P, CA-327/327P,
CA-325A/325AP/325B,
CA-511/512/513
Camera adaptor: CMA-8A/8ACE
Camera remote control unit: RM-M7G

VTR

Betacam format video cassette recorder: PVV-1/1P
Hi8 format video cassette recorder:
EVV-9000/9000P
Portable video cassette recorder: VO-8800/8800PS
Betacam SP portable recorder: BVW-35/35P
SP-Umatic video cassette recorder: BVU-150/150P

Battery Pack and Charger

Battery pack: NP-1B, NP-1A
Battery charger: BC-1WB, BC-1WA

Microphone and Accessories

Condenser microphone: ECM-672, C-74
Microphone holder: CAC-12
Microphone cable: EC-0.5C2

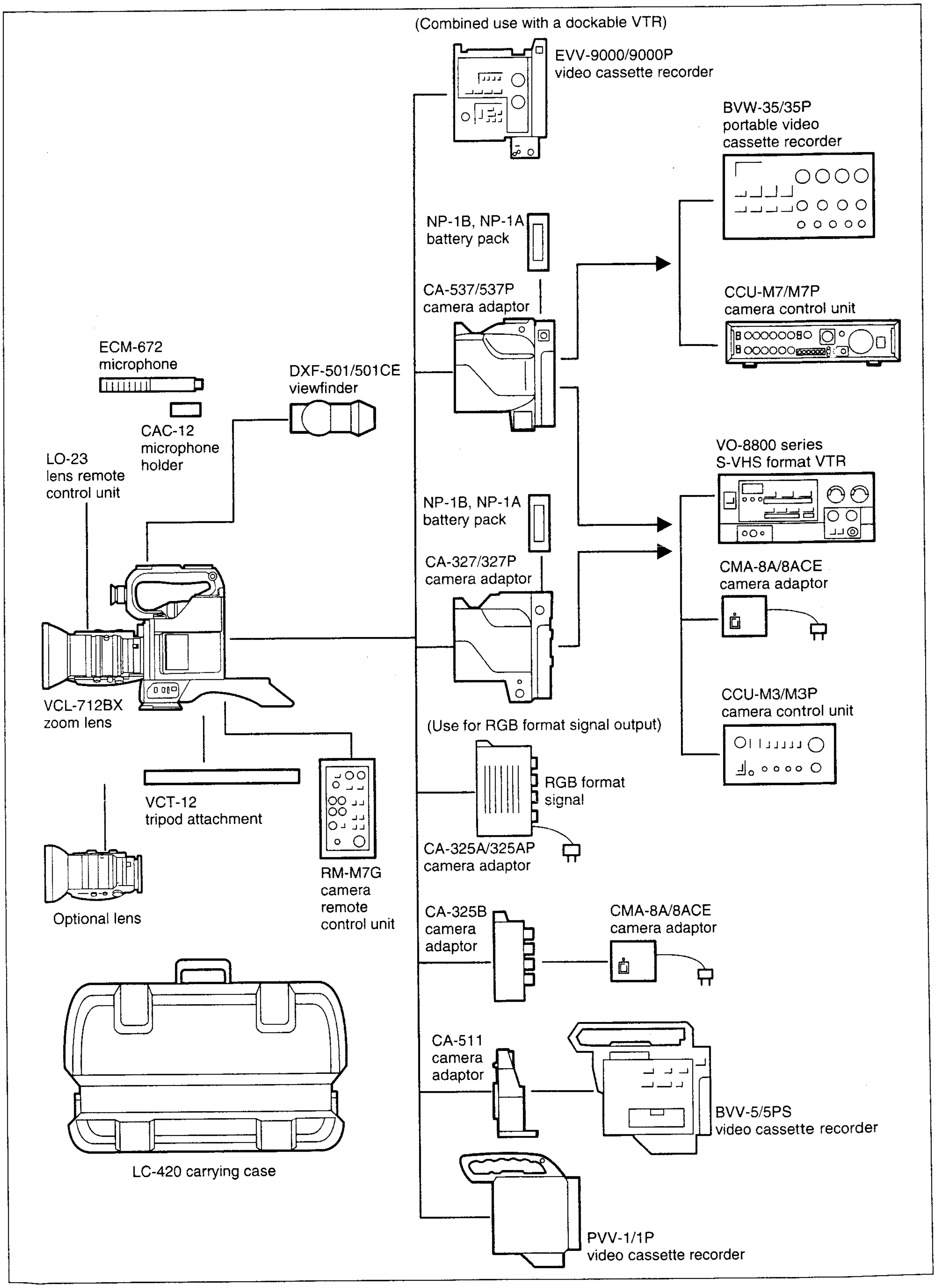
Equipment for Studio Use

Camera control unit CCU-M7/M7P
Camera control unit: CCU-M3/M3P
Special-effects generator: SEG-2550/2550P
Universal chroma keyer: CRK-2000
Wipe pattern extender: WEX-2000/2000P
Electronic viewfinder: DXF-50/50CE
Electronic viewfinder: DXF-40A/40ACE
Electronic viewfinder: DXF-501/501CE
Intercom headset: DR-100A
Rack mounting metal: RMM-1800

Camera Cable and Others

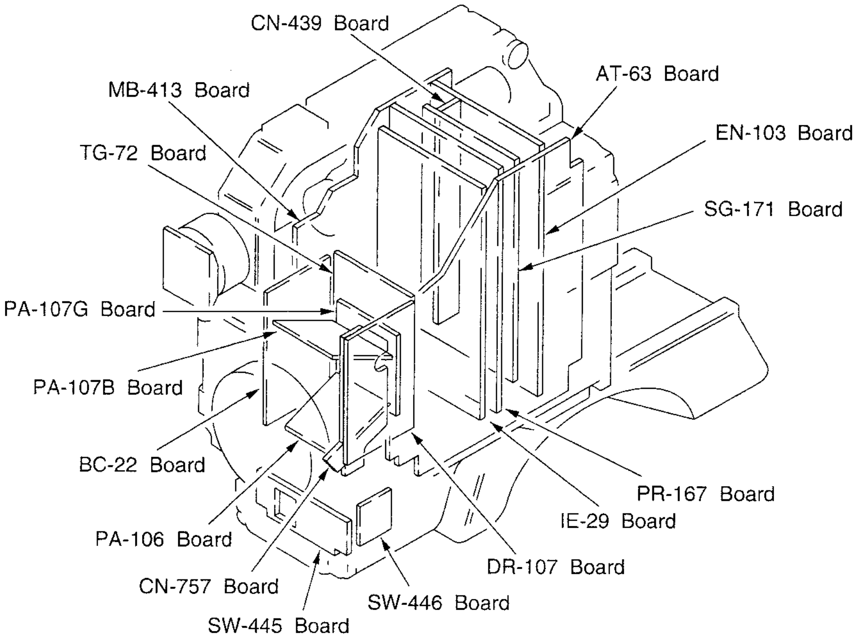
Camera cable with Z-type 26 pin connectors:
CCZ-A2, CCZ-A5, CCZ-A10
CCZ-A25, CCZ-A50, CCZ-A100
Camera cable with Z-type 26 pin and Q-type 14 pin connectors: CCZQ-A2, CCZQ-A5, CCZQ-A10, CCZQ-A2AM
Camera cable with Q-type 14-pin connectors:
CCQ-2BRS, CCQ-5BRS, CCQ-10BRS
Camera cable with Q-type 14-pin connectors:
CCQ-10AM, CCQ-25AM, CCQ-50AM, CCQ-100AM
Camera cable with Z-type 26-pin and J-type 10-pin connectors: CCZJ-2
Cable extension adaptor: CCZZ-1B, CCZZ-1E
Carrying case: LC-420
Camera rain cover: LCR-1

Sample Video System Configuration


(Combined use with a dockable VTR)
EVV-9000/9000P video cassette recorder
BVW-35/35P portable video cassette recorder
NP-1B, NP-1A battery pack
CA-537/537P camera adaptor
CCU-M7/M7P camera control unit
ECM-672 microphone
DXF-501/501CE viewfinder
CAC-12 microphone holder
LO-23 lens remote control unit
VO-8800 series S-VHS format VTR
NP-1B, NP-1A battery pack
CA-327/327P camera adaptor
CMA-8A/8ACE camera adaptor
CCU-M3/M3P camera control unit
VCL-712BX zoom lens
(Use for RGB format signal output)
RGB format signal
VCT-12 tripod attachment
CA-325A/325AP camera adaptor
RM-M7G camera remote control unit
Optional lens
CA-325B camera adaptor
CMA-8A/8ACE camera adaptor
CA-511 camera adaptor
BVV-5/5PS video cassette recorder
LC-420 carrying case
PVV-1/1P video cassette recorder

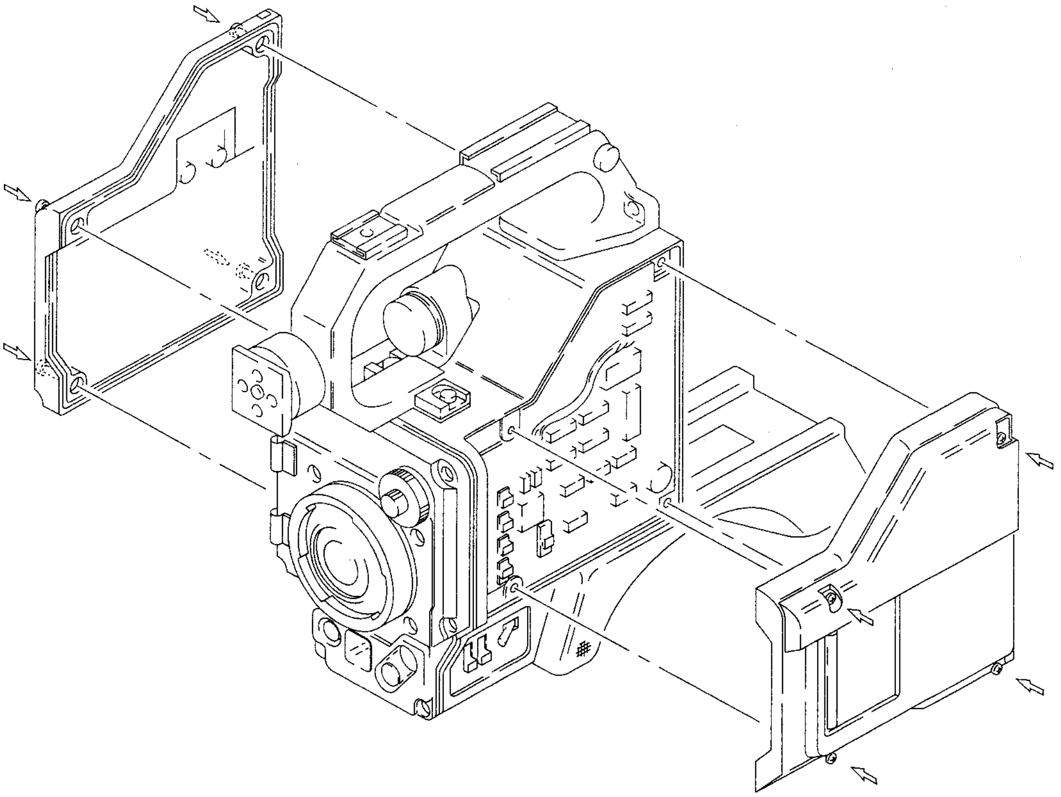
SECTION 2
SERVICE INFORMATION

2-1. BOARD LAYOUT


CN-439 Board
AT-63 Board
MB-413 Board
EN-103 Board
TG-72 Board
SG-171 Board
PA-107G Board
PA-107B Board
BC-22 Board
PR-167 Board
IE-29 Board
PA-106 Board
DR-107 Board
CN-757 Board
SW-446 Board
SW-445 Board

2-2. REMOVAL OF CABINET

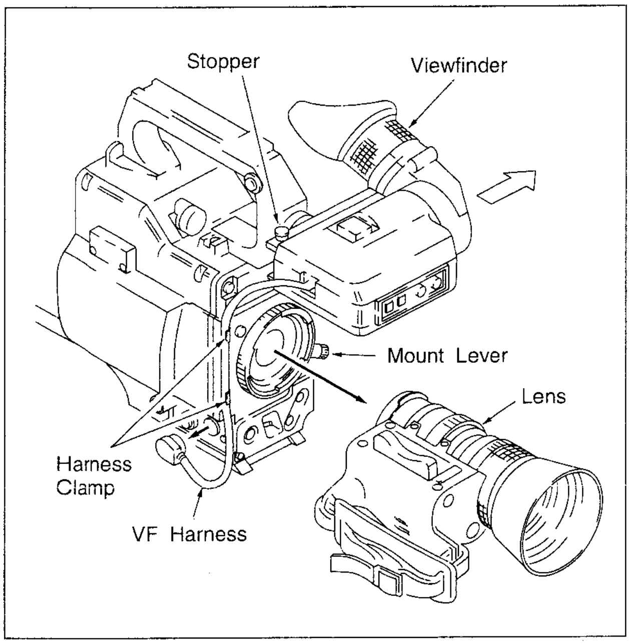
Loosen the four screws to remove each side cover.



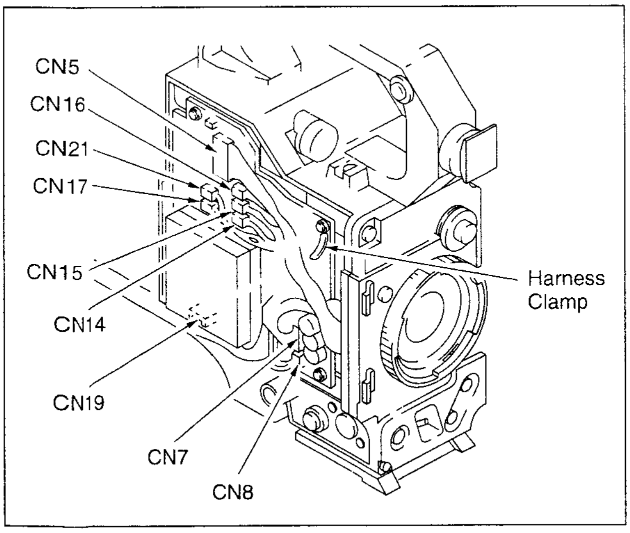
2-3. REPLACEMENT OF MAIN PARTS

2-3-1. Replacement of CCD Unit

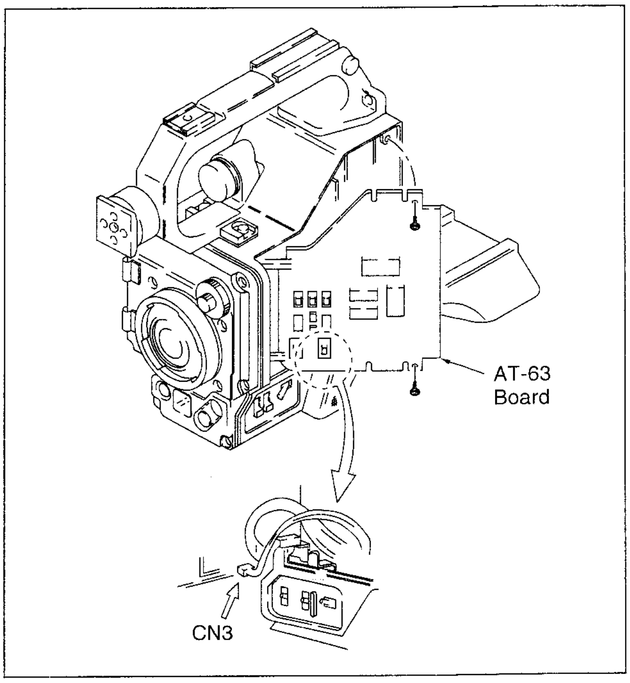
1. Turn the mount lever counterclockwise and remove the lens. Release the VF harness from the harness clamp. Pull the viewfinder in the direction of arrow, pulling the stopper of viewfinder. The viewfinder will be removed.


Stopper
Viewfinder
Mount Lever
Lens
Harness Clamp
VF Harness

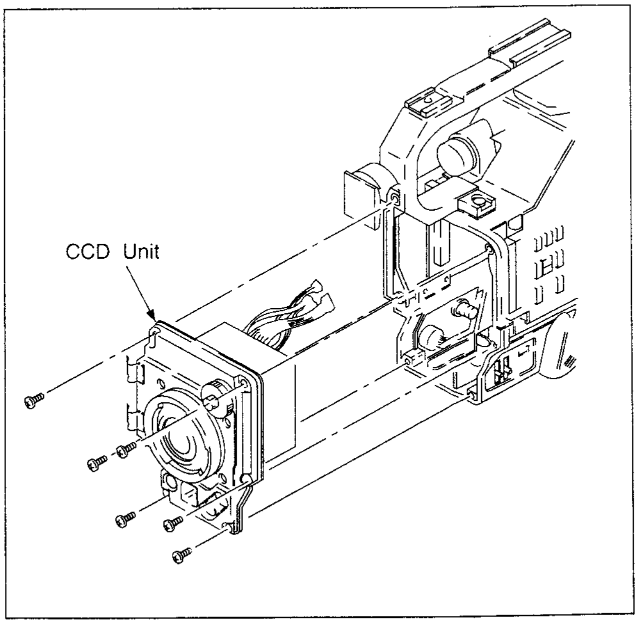
2. Remove the right and left side panels, referring to Section 2-2 "REMOVAL OF CABINET".
3. Disconnect the eight connectors CN5, CN7, CN8, CN14, CN15, CN16, CN19 and CN21 on the MB-413 board. Release the harness from the harness clamp.


CN5
CN16
CN21
CN17
CN15
CN14
CN19
CN7
CN8
Harness Clamp

4. Remove the two screws shown in the figure and open the AT-63 board. Disconnect the connector CN3.


AT-63 Board
CN3

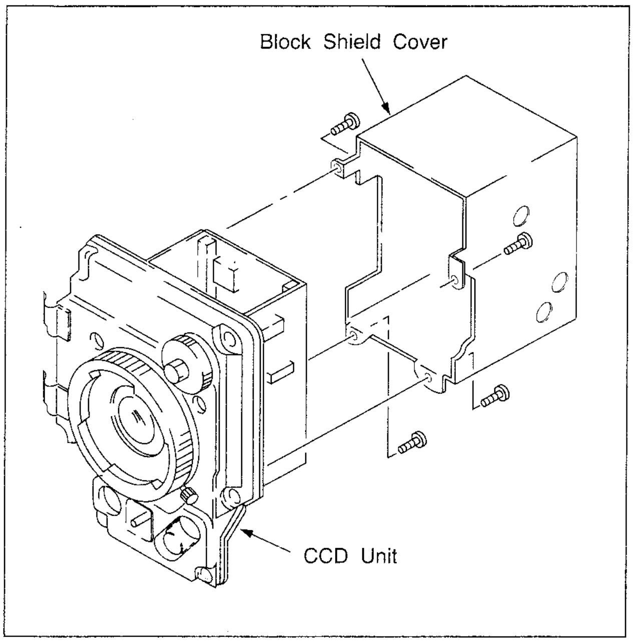
5. Remove the six screws securing the front panel. Pull out the CCD unit.



6. Install a new CCD unit by reversing procedures above.

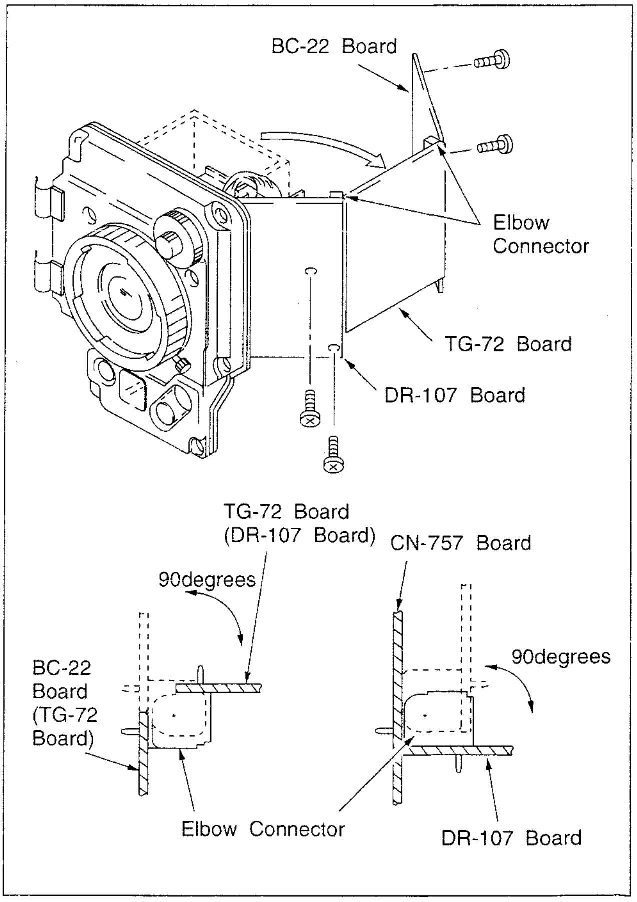
2-3-2. Replacement of TG-72, DR-107 and CN-432 Boards

1. Remove the CCD unit, referring to Steps 1 to 5 in Section 2-3-1. "Replacement of CCD Unit".
2. Remove the four screws and remove the block shielding cover.

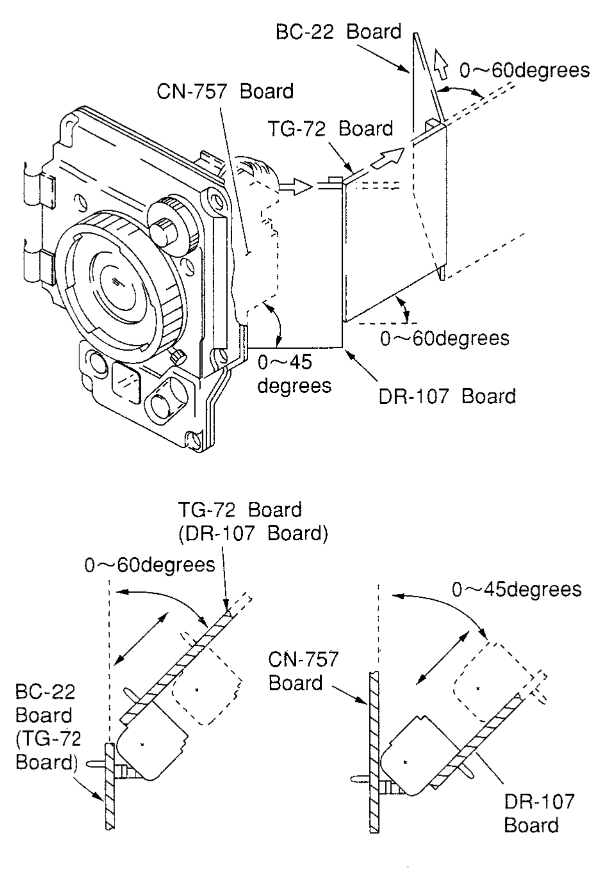

Block Shield Cover
CCD Unit

3. Remove the two couples of screws fixing the BC-22 and DR-107 boards respectively, and extend the BC-22, TG-72 and DR-107 boards as illustrated. Do not extend the angles in the connection of each board at more than 90 degrees, or the elbow connector may be damaged.

* Two kinds of elbow connector are used between boards.
Front-to-front type connector
BC-22 board ↔ TG-72 board
TG-72 board ↔ DR-107 board
Back-to front type connector
DR-107 board ↔ CN-757 board
PR-148 board ↔ IE-29 board

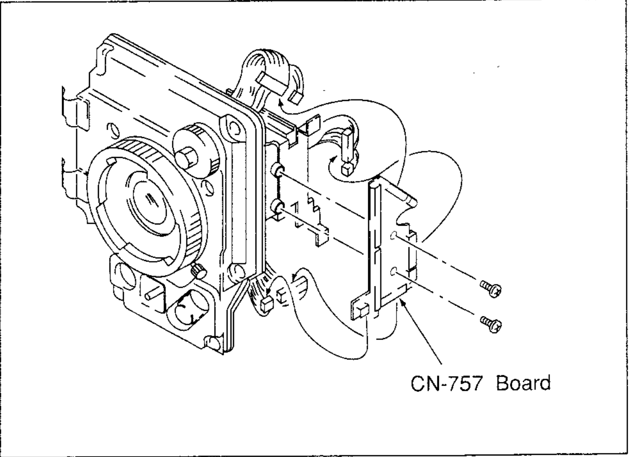

BC-22 Board
Elbow Connector
TG-72 Board
DR-107 Board
TG-72 Board (DR-107 Board)
CN-757 Board
90degrees
BC-22 Board (TG-72 Board)
90degrees
Elbow Connector
DR-107 Board

4. Remove the TG-72 and DR-107 boards. Remove and install each board extending the angles within the degrees shown in the illustration, or the elbow connectors may be damaged.


BC-22 Board
0~60degrees
CN-757 Board
TG-72 Board
0~60degrees
0~45
degrees
DR-107 Board
TG-72 Board
(DR-107 Board)
0~60degrees
0~45degrees
CN-757
Board
BC-22
Board
(TG-72
Board)
DR-107
Board

5. Replace the TG-72 or DR-107 board. Assemble the boards by reversing procedures above. If the CN-757 board is to be replaced, perform Step 6 and later.

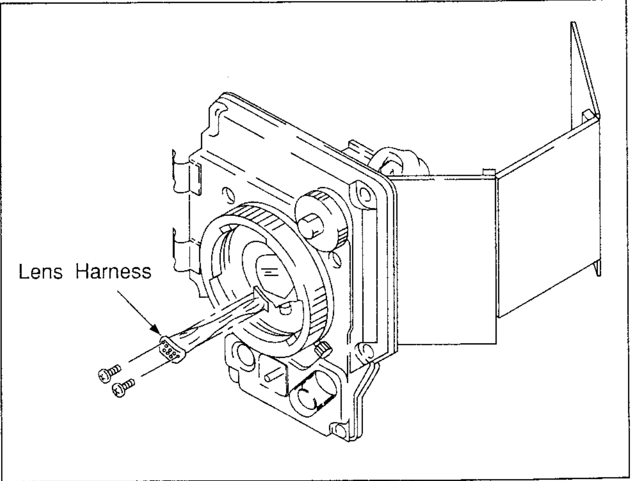
6. Disconnect the six connectors CN3, CN4, CN5, CN6, CN7 and CN8 on the CN-757 board. Remove the two screws and remove the CN-757 board.


CN-757 Board

7. Install a new board and reassemble the boards by reversing procedures above.

2-3-3. Replacement of Lens Harness

1. Release the boards as illustrated referring to Steps 1 to 3 in Section 2-3-2.
2. Remove the two screws and pull out the lens harness.


Lens Harness

3. Install a new harness by reversing procedures above.

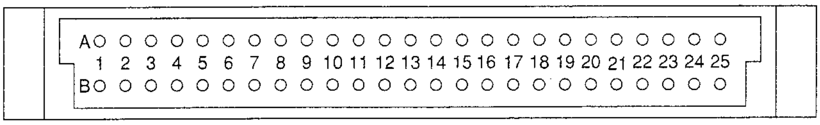
2-4. CONNECTORS AND CABLES

2-4-1. Connector Input/Output Signals

The main connector input/output signals are as follows:

VIDEO OUT (BNC); 1.0 V p-p±0.1 V, sync negative 75Ω

CAMERA/CA (50P)



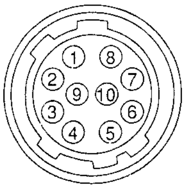
(EXT VIEW)

Pin No.	Signal	Specification
A1	MODE ID	OPEN: COMP, GND: R/G/B
B1	GND (CHASSIS)	
A2	MIC (Y) OUT	-60 dBm
B2	MIC (X) OUT	
A3	MIC (G) OUT	
B3	(SPARE)	
A4	REC TALLY IND IN	Zi≧600 Ω
B4	(SPARE)	
A5	VTR START/STOP OUT	
B5	(SPARE)	
A6	(SPARE)	
B6	(SPARE)	
A7	(SPARE)	
B7	(SPARE)	
A8	GENLOCK VIDEO (G) IN	Zi≧1 kΩ
B8	GENLOCK VIDEO (X) IN	
A9	SYNC (G) OUT	H : 4.0~5.5 V p-p : negative L : 0±0.4 V dc Zo≦2 kΩ
B9	SYNC (X) OUT	
A10	PB RET VIDEO (G) IN	Zi≦10 kΩ
B10	PB RET VIDEO (X) IN	
A11	COLOR FRAMING PULSE	H : 4.0~5.5 V p-p L : 0±0.4 V dc Zo≦2 kΩ
B11	VF VIDEO CONT IN	CAM: OPEN Zi≧1 kΩ, PB: 0 V
A12	VBS (G) OUT	1.0 V p-p, negative sync Zo=75 Ω ±5%
B12	VBS (X) OUT	
A13	VTR SAVE CONT OUT	STBY: 4.0~5.5 V p-p SAVE: 0±0.25 V Zo≦100 Ω
B13	VTR/CCU CONT OUT	VTR : 0±0.25 V CCU : 5.0±0.5 V Zo≦1 kΩ
A14	CHROMINANCE (G) OUT	NTSC: 0.286 V p-p±10% PAL: 0.300 V p-p±10% Zo≦75 Ω ±5%
B14	CHROMINANCE (X) OUT	
A15	LUMINANCE (G) OUT	1.0 V p-p, negative sync. Zo≦75 Ω ±5%
B15	LUMINANCE (X) OUT	
A16	VIDEO GND OUT	R/G/B 1.4 V p-p, positive Zo≦75 Ω ±5% component out *1
B16	R/R-Y VIDEO OUT	
A17	G/Y VIDEO OUT	
B17	B/B-Y VIDEO OUT	
A18	BATT ALARM/S. DATA	
B18	REC REVIEW CONT OUT	GND; rec review
A19	(SPARE)	
B19	(SPARE)	
A20	+8.5 V OUT	8.3 V~9.1 V
B20	+5 V OUT	±0.1 V
A21	-5 V OUT	±0.1 V
B21	GND	REG, GND
A22	POWER +12 V DC IN	10.6 V to 17.0 V dc
B22	POWER +12 V DC IN	
A23	POWER +12 V DC GND	GND for +12 V dc
B23	POWER +12 V DC GND	
A24	(SPARE)	
B24	(SPARE)	
A25	GND (CHASSIS)	CHASSIS GND
B25	GND (CHASSIS)	

*1

	J	UC	EK
Y	0.714 V p-p	0.714 V p-p	0.700 V p-p
R-Y	0.756 V p-p	0.700 V p-p	0.525 V p-p
B-Y	0.756 V p-p	0.700 V p-p	0.525 V p-p

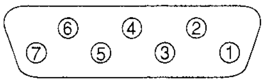
REMOTE (10P, FEMALE)



(EXT VIEW)

Pin No.	Signal	Specification
1	(SPARE)	
2	VBS (RM) (X)	1.0 Vp-p, sync negative
3	VBS (RM) (G)	
4	(SPARE)	
5	VTR START/STOP IN	Zi≧10 kΩ –OPEN –0±0.5 V
6	S. DATA (X)	0 to 5 V Zi≧10 kΩ
7	S. DATA GND	GND for S. DATA
8	REC TALLY IND OUT	
9	POWER +12 V DC GND	GND for +12 V dc
10	POWER +12 V DC OUT	10.6 V to 17.0 V dc, 3A

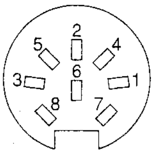
LENS (7P)



(WIRING SIDE)

Pin No.	Signal	Specification
1	VF VIDEO CONT IN	ON: 0±5 V dc
2	VTR START/STOP IN	TRIG: 0±0.5 V
3	POWER +12 V DC GND	GND for +12 V dc
4	COMPULSORY AUTO IRIS CONT OUT	5±0.5 V dc
5	IRIS CONT OUT	F16: 3.4 V dc F2.8: 6.2 V dc
6	POWER +12 V DC OUT	10.6 V to 17 V dc, 3A
7	(SPARE)	

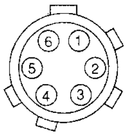
VF (8P, FEMALE)



(WIRING SIDE)

Pin No.	Signal	Specification
1	POWER +12 V DC GND	GND for +12 V dc
2	REC TALLY IND OUT	Zo≦1.1 kΩ
3	E. SHUTTER IND OUT	Zo≦1.1 kΩ
4	VF VIDEO (G) OUT	GND for VF VIDEO
5	BATT IND OUT	Zo≦1.1 kΩ
6	VF VIDEO (X) OUT	V=1 V p-p
7	POWER +12 V DC OUT	10.6 V to 17 V dc, 3A
8	GAIN UP IND OUT	Zo≦1.1 kΩ

OPTION (6P, FEMALE)



(WIRING SIDE)

Pin No.	Signal	Specification
1	VF VIDEO CONT IN	ON: 0±0.5 V dc
2	VTR START/STOP IN	TRIG: 0±0.5 V
3	POWER +12 V DC GND	GND for +12 V dc
4	COMPULSORY AUTO IRIS CONT OUT	5±0.5 V dc
5	IRIS CONT OUT	F16: 3.4 V dc F2.8: 6.2 V dc
6	POWER +12 V DC OUT	10.6 V to 17 V dc, 3A

2-4-2. Connections

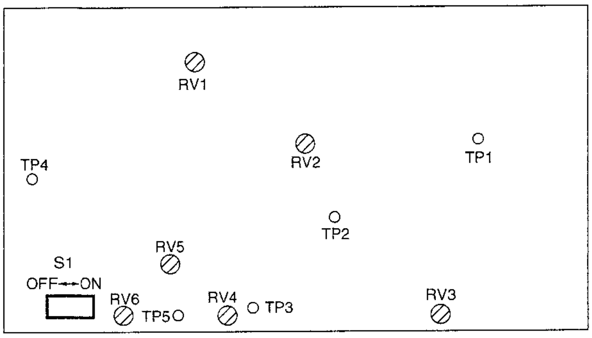
Connections made with the connector panels during installation or service, should be made with the connectors or complete cable assemblies specified in the following list, or equivalent parts.

Connector function	Pars No. and name of connector with cable
REMOTE (10P, FEMALE)	1-506-522-11 CONNECTOR, ROUND 10P, MALE HIROSE HR10A-10P-10P equality or CCA-7-20 Cable assembly (optional)
VIDEO OUT (BNC)	1-560-069-11 PLUG, BNC or B-B cable assembly (Cable length 1.5 m, optional)
VF (8P, FEMALE)	9-994-797-01 CABLE, VF
OPTION (6P, FEMALE)	1-560-078-00 CONNECTOR, 6P MALE HIROSE HR10-7PA-6P (3) equality 1-560-078-21 CONNECTOR, 6P MALE HIROSE HR10-7PA-6P equality 1-566-365-11 CONNECTOR, 6P MALE HIROSE HR10A-7P-6P (01) equality 1-566-365-21 CONNECTOR, 6P MALE HIROSE HR10A-7P-6P (02) equality

2-5. INTERNAL SWITCH SETTING

IE-29 board

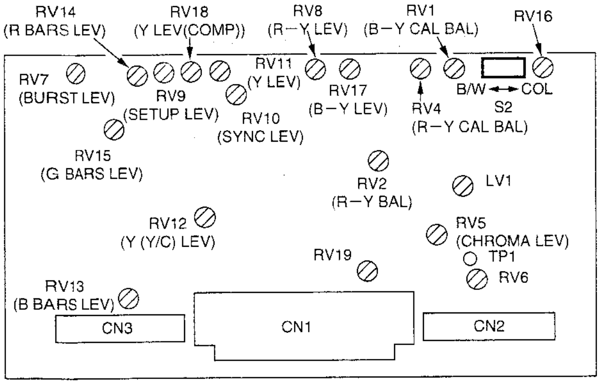
- S1 (DTL ON/OFF)
  When turned ON, the detail circuit activates and the image contour is enhanced.
  The switch is factory-set to 「ON」 position.
  Set it according to use.


RV1
RV2
TP1
TP4
TP2
RV5
S1
OFF←→ON
RV6
TP5
RV4
TP3
RV3

IE-29 BOARD (COMPONENT SIDE)

EN-103 board

- S2 (BW/COL)
  When set to 「COL」 (color) position, the signal sent from the viewfinder is changed from monochrome to color.
  Normally set to 「BW」 position.

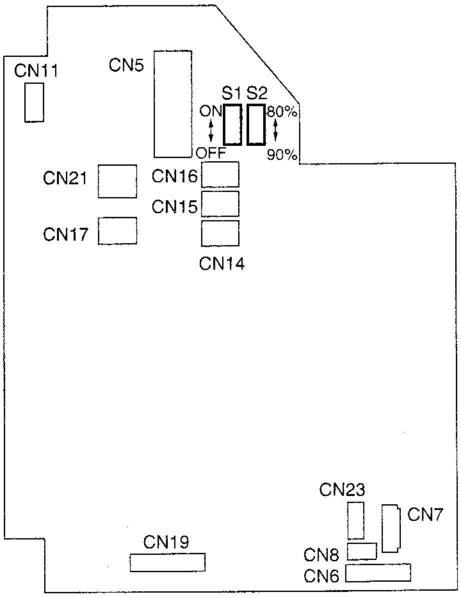

RV14
(R BARS LEV)
RV18
(Y LEV(COMP))
RV8
(R−Y LEV)
RV1
(B−Y CAL BAL)
RV16
RV7
(BURST LEV)
RV9
(SETUP LEV)
RV11
(Y LEV)
RV10
(SYNC LEV)
RV17
(B−Y LEV)
RV4
(R−Y CAL BAL)
B/W←→COL
S2
RV15
(G BARS LEV)
RV2
(R−Y BAL)
LV1
RV12
(Y (Y/C) LEV)
RV5
(CHROMA LEV)
TP1
RV19
RV6
RV13
(B BARS LEV)
CN3
CN1
CN2

EN-103 BOARD (COMPONENT SIDE)

MB-413 board

- S1 (RM CHARA ON/OFF)
  When turned ON, the charactor signal which is the same as displayed on the viewfinder is output at the MONITOR OUT connector on the RM-M7G remote control unit.

- S2 (SIZE 90%/80%)
  When the switch S7 (ZONE/MARKER) on the AT-63 board is set to 「ZONE」 position, the range of the SAFETY ZONE can be selected to either 「80%」 or 「90%」. The switch is factory-set to 「90%」 position.


CN11
CN5
S1 S2
ON
OFF
80%
90%
CN21
CN16
CN15
CN17
CN14
CN23
CN7
CN19
CN8
CN6

MB-413 BOARD (COMPONENT SIDE)

AT-63 board

- S1 (SHUTTER)

For details on the switch, refer to the DXC-327A /327AP instruction manual.

- S2 (ADJ/OPE) *1

When set to 「ADJ」 position, setting values of R GAIN, B GAIN, R PED, B PED, M PED, R DARK, B DARK, and G DARK that are stored in the microcomputer, are all reset to the preset value.
Set it to 「ADJ」 position for adjustment.

* 1 Using the switch S2 (ADJ/OPE), data in memory "EEPROM" can be erased. Proceed as follows.

Procedures
① Set the switch S2 (ADJ/OPE) to 「ADJ」 position.
② Press the DSP CHG button twice.
③ Make sure the following indication appears on the viewfinder screen.

· ERASE?
YES-UP SW
NEXT-CHG SW

④ Press the UP/ON button on the front panel.
⑤ Make sure the following indication appears on the viewfinder screen.

ERASE
OK

(The display returns to normal display in about three seconds.)

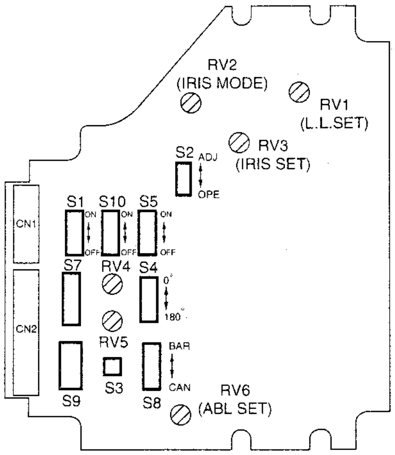
⑥ Reset the switch S2 (ADJ/OPE) to 「OPE」 position.

As mentioned above, memorized setting values are all reset to the preset value shown in the table. Ordinarily, you do not need to erase the memory.

ITEM	PRESET STATE
SHUTTER SPEED	1/100 (NTSC), 1/60 (PAL)
C. SCAN	Minimum Value
AUTO WHT/AUTO BLK	Adjusted Value is preset
A. IRIS/DTL/M. PED	Setting Value is preset
TITLE CHARACTERS	All erased

- S3 (REC REVIEW)
- S4 (SC 0/180)
- S5 (ZEBRA)
- S7 (ZONE/MARKER)
- S8 (BARS)
- S9 (DISP)
- S10 (ABL)

For details on the switches, refer to the DXC-327A /327AP instruction manual.

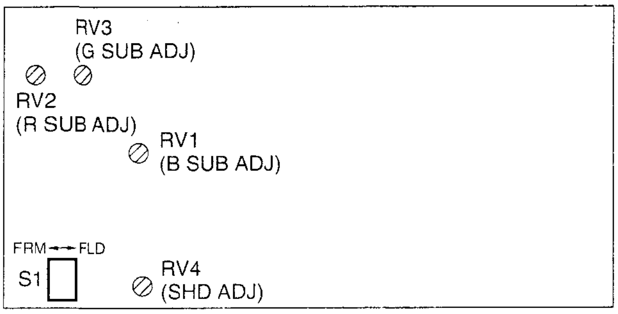


AT-63 BOARD (COMPONENT SIDE)

DR-107 board

•S1 (FLD/FRM)

A CCD read system can be selected to a field system (FLD) or frame system (FRM).
The switch is factory-set to 「FLD」 position.

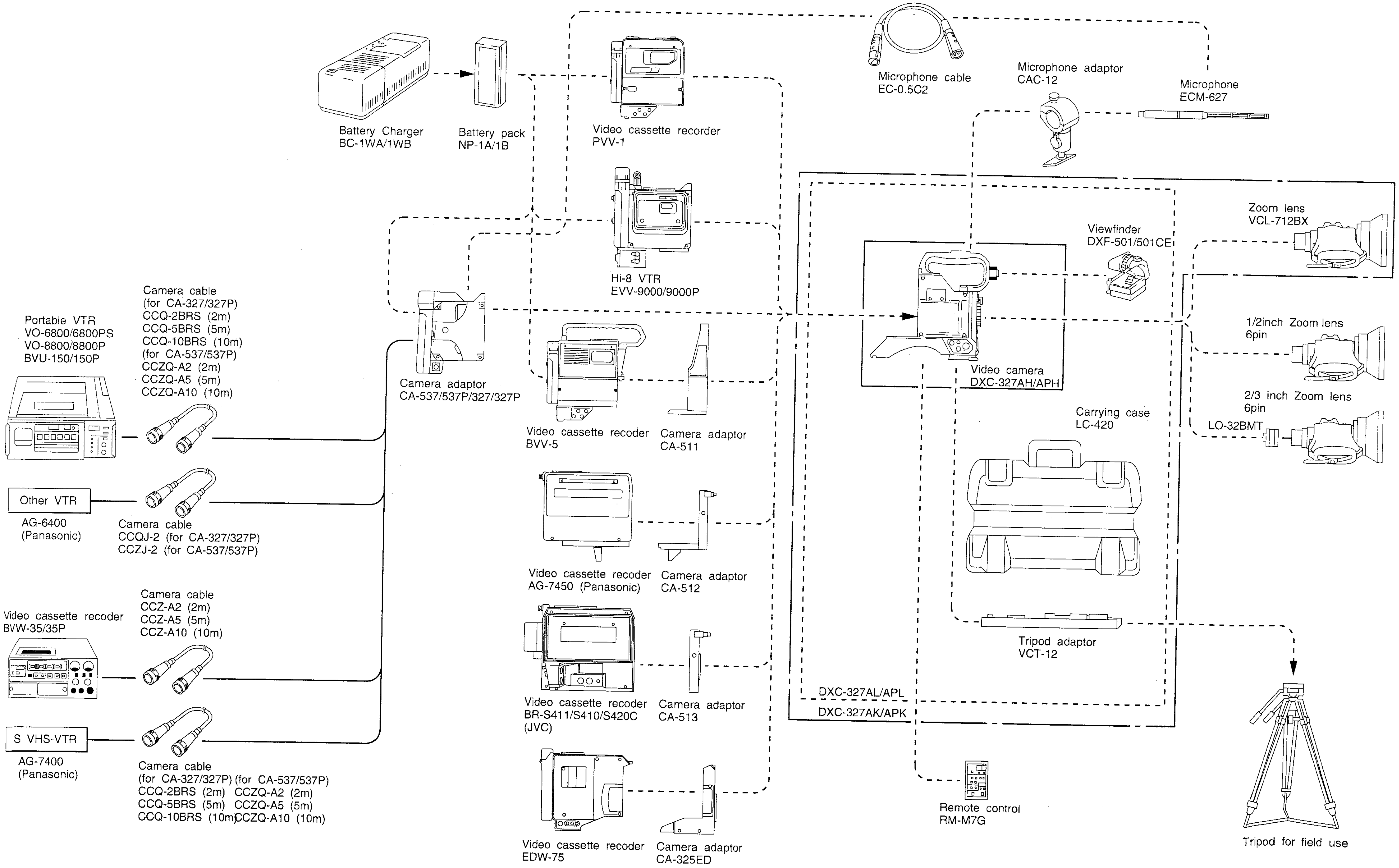

RV3
(G SUB ADJ)
RV2
(R SUB ADJ)
RV1
(B SUB ADJ)
FRM←→FLD
S1
RV4
(SHD ADJ)

DR-107 BOARD (COMPONENT SIDE)

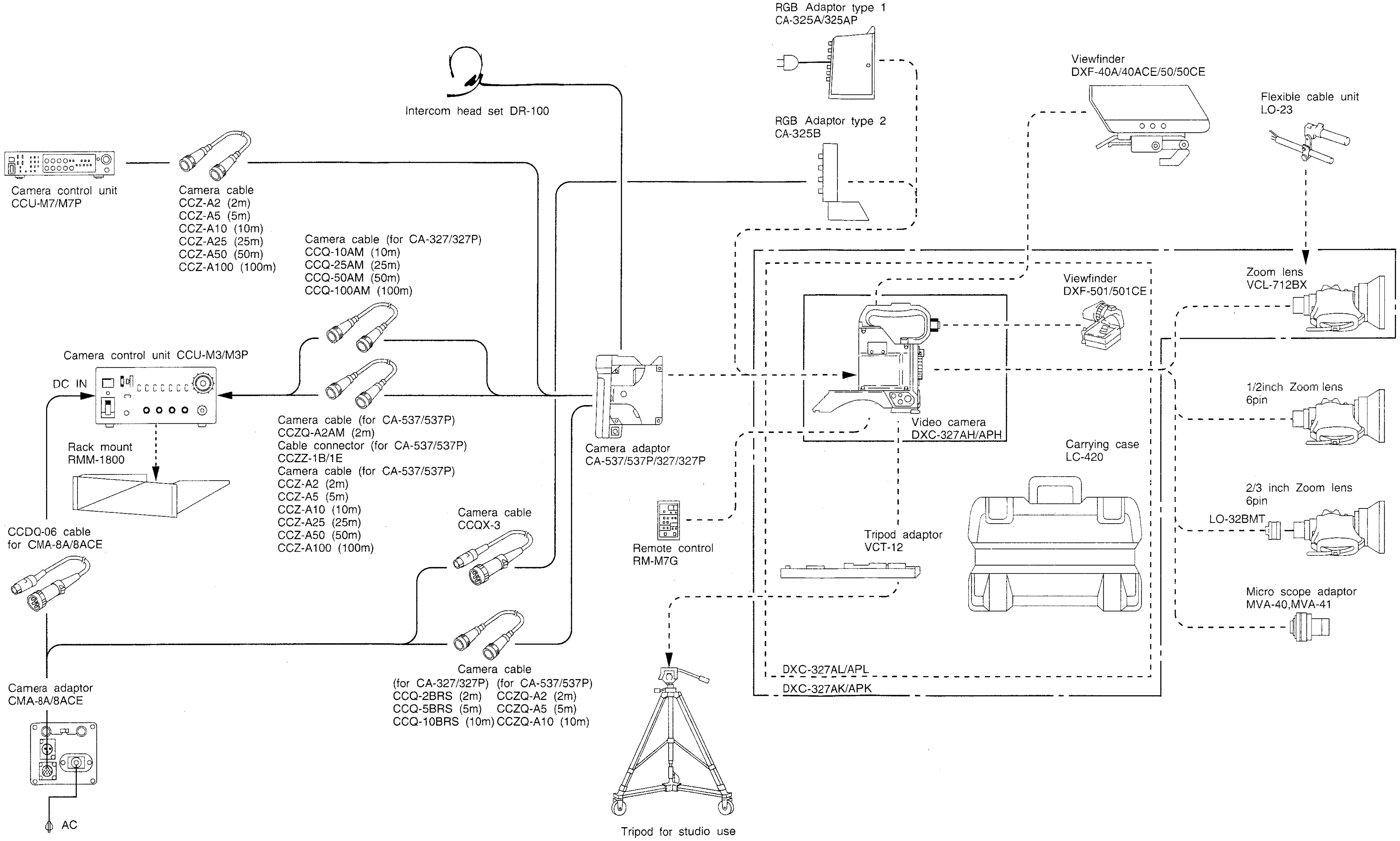
2-6. SYSTEM BLOCK DIAGRAM

The configuration of DXC-327A/327AP system and the block diagram of separate accessories for sale (peripheral devices) are shown.

2-6-1. Field Use

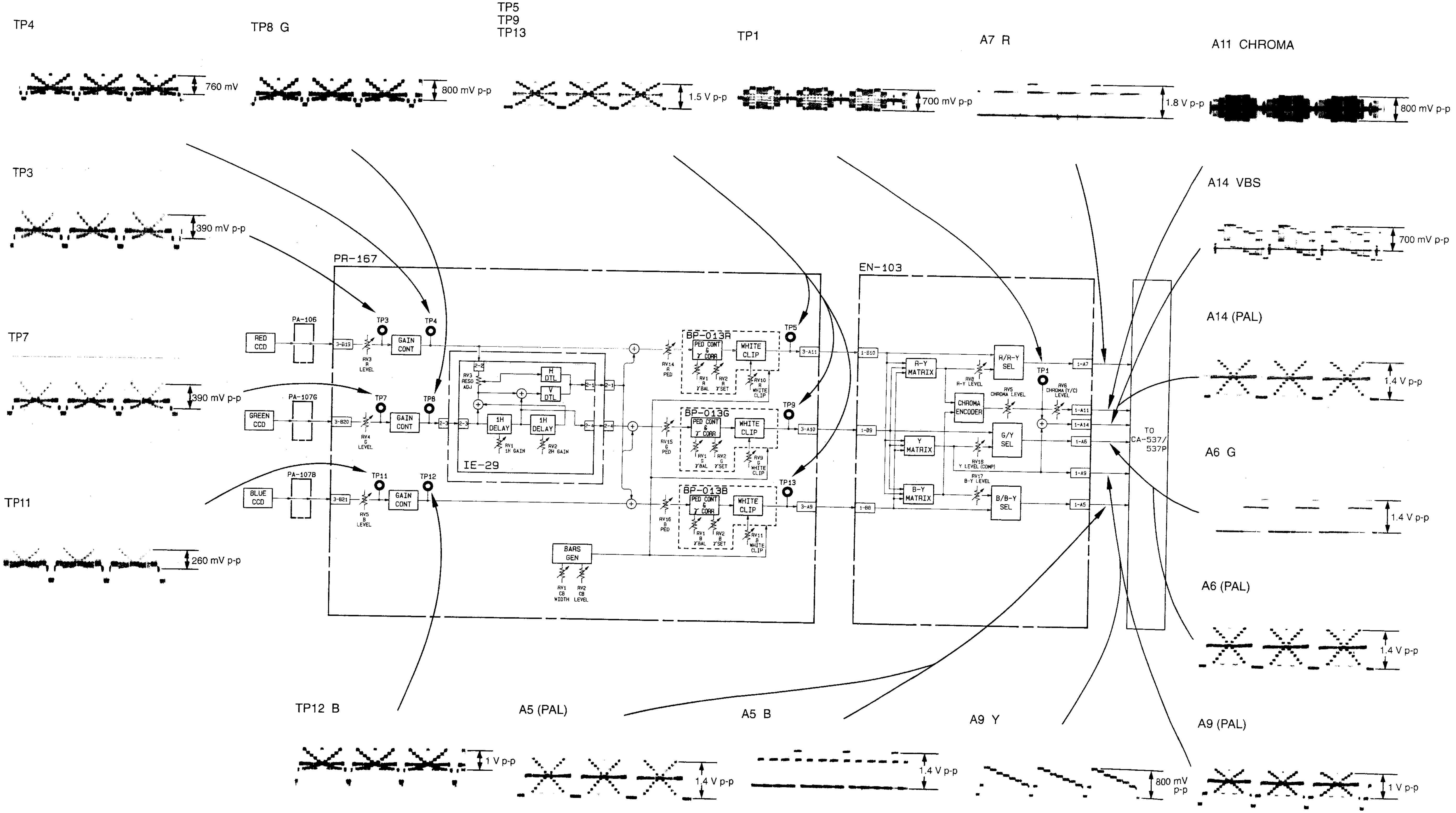

Battery Charger
BC-1WA/1WB
Battery pack
NP-1A/1B
Video cassette recorder
PVV-1
Microphone cable
EC-0.5C2
Microphone adaptor
CAC-12
Microphone
ECM-627
Hi-8 VTR
EVV-9000/9000P
Viewfinder
DXF-501/501CE
Zoom lens
VCL-712BX
Camera cable
(for CA-327/327P)
CCQ-2BRS (2m)
CCQ-5BRS (5m)
CCQ-10BRS (10m)
(for CA-537/537P)
CCZQ-A2 (2m)
CCZQ-A5 (5m)
CCZQ-A10 (10m)
Portable VTR
VO-6800/6800PS
VO-8800/8800P
BVU-150/150P
Camera adaptor
CA-537/537P/327/327P
Video cassette recoder
BVV-5
Camera adaptor
CA-511
Video camera
DXC-327AH/APH
1/2inch Zoom lens
6pin
2/3 inch Zoom lens
6pin
LO-32BMT
Carrying case
LC-420
Other VTR
AG-6400
(Panasonic)
Camera cable
CCQJ-2 (for CA-327/327P)
CCZJ-2 (for CA-537/537P)
Video cassette recoder
AG-7450 (Panasonic)
Camera adaptor
CA-512
Camera cable
CCZ-A2 (2m)
CCZ-A5 (5m)
CCZ-A10 (10m)
Video cassette recoder
BVW-35/35P
Tripod adaptor
VCT-12
Video cassette recoder
BR-S411/S410/S420C
(JVC)
Camera adaptor
CA-513
DXC-327AL/APL
DXC-327AK/APK
S VHS-VTR
AG-7400
(Panasonic)
Camera cable
(for CA-327/327P) (for CA-537/537P)
CCQ-2BRS (2m) CCZQ-A2 (2m)
CCQ-5BRS (5m) CCZQ-A5 (5m)
CCQ-10BRS (10m) CCZQ-A10 (10m)
Remote control
RM-M7G
Tripod for field use
Video cassette recoder
EDW-75
Camera adaptor
CA-325ED

2-6-2. Studio/OB Van Use


RGB Adaptor type 1
CA-325A/325AP
Intercom head set DR-100
RGB Adaptor type 2
CA-325B
Viewfinder
DXF-40A/40ACE/50/50CE
Flexible cable unit
LO-23
Camera control unit
CCU-M7/M7P
Camera cable
CCZ-A2 (2m)
CCZ-A5 (5m)
CCZ-A10 (10m)
CCZ-A25 (25m)
CCZ-A50 (50m)
CCZ-A100 (100m)
Camera cable (for CA-327/327P)
CCQ-10AM (10m)
CCQ-25AM (25m)
CCQ-50AM (50m)
CCQ-100AM (100m)
Viewfinder
DXF-501/501CE
Zoom lens
VCL-712BX
Camera control unit CCU-M3/M3P
DC IN
Camera cable (for CA-537/537P)
CCZQ-A2AM (2m)
Cable connector (for CA-537/537P)
CCZZ-1B/1E
Camera cable (for CA-537/537P)
CCZ-A2 (2m)
CCZ-A5 (5m)
CCZ-A10 (10m)
CCZ-A25 (25m)
CCZ-A50 (50m)
CCZ-A100 (100m)
Rack mount
RMM-1800
Camera adaptor
CA-537/537P/327/327P
Video camera
DXC-327AH/APH
1/2inch Zoom lens
6pin
Carrying case
LC-420
2/3 inch Zoom lens
6pin
LO-32BMT
CCDQ-06 cable
for CMA-8A/8ACE
Camera cable
CCQX-3
Remote control
RM-M7G
Tripod adaptor
VCT-12
Micro scope adaptor
MVA-40,MVA-41
DXC-327AL/APL
DXC-327AK/APK
Camera cable
(for CA-327/327P) (for CA-537/537P)
CCQ-2BRS (2m) CCZQ-A2 (2m)
CCQ-5BRS (5m) CCZQ-A5 (5m)
CCQ-10BRS (10m) CCZQ-A10 (10m)
Camera adaptor
CMA-8A/8ACE
AC
Tripod for studio use

2-7. CHECK AND MAINTENANCE

2-7-1. Video Level Check Sheet

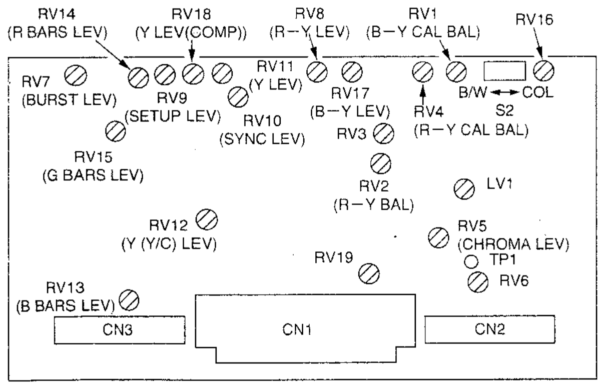

TP4
760 mV
TP8 G
800 mV p-p
TP5
TP9
TP13
1.5 V p-p
TP1
700 mV p-p
A7 R
1.8 V p-p
A11 CHROMA
800 mV p-p
TP3
390 mV p-p
A14 VBS
700 mV p-p
TP7
390 mV p-p
A14 (PAL)
1.4 V p-p
TP11
260 mV p-p
A6 G
1.4 V p-p
A6 (PAL)
1.4 V p-p
TP12 B
1 V p-p
A5 (PAL)
1.4 V p-p
A5 B
1.4 V p-p
A9 Y
800 mV p-p
A9 (PAL)
1 V p-p
PR-167
RED CCD
GREEN CCD
BLUE CCD
PA-106
PA-107G
PA-107B
3-B19
3-B20
3-B21
RV3 R LEVEL
RV4 G LEVEL
RV5 B LEVEL
TP3
TP4
TP7
TP8
TP11
TP12
GAIN CONT
2-2
RV3 RESO ADJ
H DTL
V DTL
1H DELAY
RV1 1H GAIN
RV2 2H GAIN
2-1
2-3
2-4
IE-29
RV14 R PED
RV15 G PED
RV16 B PED
BP-013R
BP-013G
BP-013B
PED CONT & γ CORR
WHITE CLIP
RV1 R γBAL
RV2 R γSET
RV10 R WHITE CLIP
RV1 G γBAL
RV2 G γSET
RV9 G WHITE CLIP
RV1 B γBAL
RV2 B γSET
RV11 B WHITE CLIP
TP5
TP9
TP13
3-A11
3-A10
3-A9
BARS GEN
RV1 CB WIDTH
RV2 CB LEVEL
EN-103
1-B10
1-B9
1-B8
R-Y MATRIX
Y MATRIX
B-Y MATRIX
RV8 R-Y LEVEL
R/R-Y SEL
CHROMA ENCODER
RV5 CHROMA LEVEL
TP1
RV6 CHROMA (Y/C) LEVEL
G/Y SEL
RV18 Y LEVEL (COMP)
RV17 B-Y LEVEL
B/B-Y SEL
1-A7
1-A11
1-A14
1-A6
1-A9
1-A5
TO CA-537/537P

	Item	Switch setting	Measuring point	Adjustment point	Spec.	Remark
Step 1	BARS Level	GAIN switch → 0 dB BARS switch → ON	A6 pin/EX-board (EN-103) WFM	⊘ RV15/EN-103 board ⊘ RV13/EN-103 board ⊘ RV14/EN-103 board	1.4±0.02 V p-p Minimize the carrier leakage → Gray	
Step 2	Carrier Balance		Vector scope	⊘ RV1/EN-103 board ⊘ RV4/EN-103 board	White beam spot → center	Use the Vectorscope for set-up 0
Step 3	Burst Level			⊘ RV7/EN-103 board	Burst spot 75%	
Step 4	Color Vector			⊘ RV2, ⊘ RV5 ⊘ LV1/EN-103 board	Beam spots of each color →Inside the ⊞ mark	
Step 5	SYNC Level		WFM	⊘ RV10/EN-103 board	40±2 IRE (300±15 mV)	
Step 6	SET UP Level			⊘ RV9/EN-103 board	7.5±0.5 IRE (0±10 mV)	
Step 7	Y Level			⊘ RV11/EN-103 board	100±2 IRE (700±15 mV)	
Step 8	COMP Y Level	GAIN switch → 0 dB BARS switch → ON	A6 pin/EX-board (EN-103)	⊘ RV18/EN-103 board	Y Level: 714 mV (700 mV)	
Step 9	COMP Y Limit	GAIN switch → 18 dB BARS switch → OFF Lens Iris → Open	A6 pin/EX-board (EN-103)	⊘ RV19/EN-103 board	Adjust⊘RV19 so that Level dose not change when turned either fully clockwise.	
Step 10	COMP B-Y Level	GAIN switch → 0 dB BARS switch → ON	A5 pin/EX-board (EN-103)	⊘ RV17/EN-103 board	700±10 mV p-p (525 mV)	
Step 11	COMP R-Y Level		A7 pin/EX-board (EN-103)	⊘ RV8/EN-103 board	700±10 mV p-p (525 mV)	
Step 12	Y/C Y Level		A9 pin/EX-board (EN-103)	⊘ RV12/EN-103 board	Y Level: 714 mV (700 mV)	Lens Iris F≒8
Step 13	Y/C Chroma Level		A11 pin/EX-board (EN-103)	⊘ RV6/EN-103 board	Burst Level: 286 mV (300 mV)	
Step 14	H/V Shading	· Object: White Window Chart · GAIN switch → 0 dB · WHITE BAL switch → PRE SET Lens Iris → F≒11	TP4/PR-167 TP8/PR-167 TP12/PR-167	⊘ RV20/PR-167 ⊘ RV17/PR-167 ⊘ RV21/PR-167 ⊘ RV18/PR-167 ⊘ RV22/PR-167 ⊘ RV19/PR-167	Waveform → flat	
Step 15	G Level	VTR switch/CA-327→ 1 WB switch → PRE	TP8/PR-167	⊘ RV4/PR-167	680±10 mV	
Step 16	1 H GAIN Level		TP1 (E1)/IE-29 TP8 (E1)/PR-167	⊘ RV1/IE-29	Ch1 + (INV. Ch2) → Flat	
Step 17	PRE B Level		TP11/PR-167	⊘ RV5/PR-167	180±5 mV	
Step 18	PRE B Gain		TP12/PR-167	⊘ RV13/PR-167	680±10 mV	
Step 19	PRE R Level		TP3/PR-167	⊘ RV3/PR-167	340±5 mV	
Step 20	PRE R Gain		TP4/PR-167	⊘ RV12/PR-167	680±10 mV	
Step 21	G Black Set	Lens Iris → Close DTL/IE-29 → OFF	TP9/PR-167	⊘ RV7/PR-167	Equal pedestal of 0 dB and it of 18 dB	**Note 3**
Step 22	G Pedestal	Lens Iris → Close GAIN switch → 0 dB		⊘ RV15/PR-167	40±5 mV	
Step 23	R/B Black Set	Lens Iris → Close GAIN switch → 18 dB	Vector scope	⊘ RV6/PR-167 ⊘ RV8/PR-167	White beam spot → center	
Step 24	R/B Pedestal	Lens Iris → Close GAIN switch → 0 dB		⊘ RV14/PR-167 ⊘ RV16/PR-167		

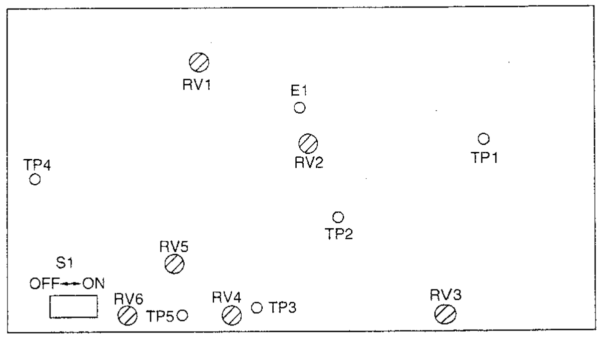
	Item	Switch setting	Measuring point	Adjustment point	Spec.	Remark
Step 25	Referance G input Level		WFM	Lens Iris	100±2 IRE (700±15 mV)	Lens Iris F≒8
Step 26	G Gamma Balance		TP9/PR-167	⊘RV1/BP-013G	**Note 1**	
Step 27	G Gamma Set			⊘RV2/BP-013G	900±10 mV	
Step 28	R Gamma Balance		TP5/PR-167	⊘RV1/BP-013R	**Note 1**	
Step 29	B Gamma Balance		TP11/PR-167	⊘RV1/BP-013B	**Note 1**	
Step 30	R/B Gamma Set and PRE Set		Vector scope WFM	⊘ RV12/PR-167 ⊘ RV13/PR-167 ⊘ RV2/BP-013R ⊘ RV2/BP-013B	White beam spot → Center **Note 2**	
Step 31	R/B White Clip	Lens → Open	WFM	⊘ RV10/EN-167 ⊘ RV11/EN-167	Carrier of white portion is minimized	
Step 32	G White Clip			⊘ RV9/PR-167	115±2 IRE (800±15 mV)	

( ) : PAL

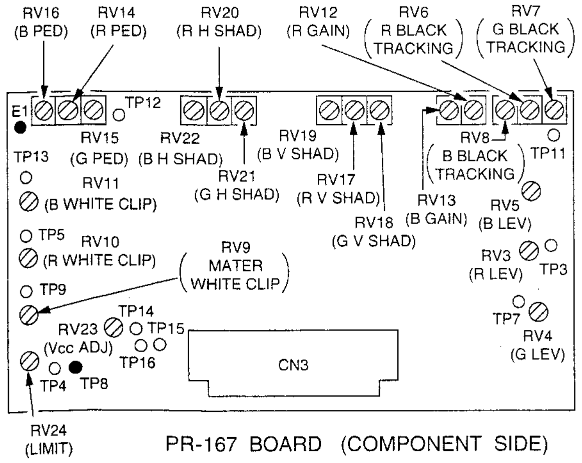
Note 1: White level does not change when ⊘ RV2 turned.
Note 2: Cross point level of the gray scale → 61 ± 2 IRE (410 ± 15 mV: PAL).
Note 3: When measuring the TP9, connect the resistance (10 kΩ) between the probe and the TP9 connector.


RV14
(R BARS LEV)
RV18
(Y LEV(COMP))
RV8
(R−Y LEV)
RV1
(B−Y CAL BAL)
RV16
RV7
(BURST LEV)
RV9
(SETUP LEV)
RV11
(Y LEV)
RV10
(SYNC LEV)
RV17
(B−Y LEV)
RV4
(R−Y CAL BAL)
B/W ←→ COL
S2
RV15
(G BARS LEV)
RV3
RV2
(R−Y BAL)
LV1
RV12
(Y (Y/C) LEV)
RV5
(CHROMA LEV)
TP1
RV19
RV6
RV13
(B BARS LEV)
CN3
CN1
CN2

EN-103 BOARD (COMPONENT SIDE)


RV1
E1
RV2
TP1
TP4
TP2
RV5
S1
OFF←→ON
RV6
TP5
RV4
TP3
RV3

IE-29 BOARD (COMPONENT SIDE)


RV16
(B PED)
RV14
(R PED)
RV20
(R H SHAD)
RV12
(R GAIN)
RV6
(R BLACK TRACKING)
RV7
(G BLACK TRACKING)
E1
TP12
RV15
(G PED)
RV22
(B H SHAD)
RV19
(B V SHAD)
RV8
(B BLACK TRACKING)
TP11
TP13
RV11
(B WHITE CLIP)
RV21
(G H SHAD)
RV17
(R V SHAD)
RV13
(B GAIN)
RV5
(B LEV)
RV18
(G V SHAD)
TP5
RV10
(R WHITE CLIP)
RV9
(MATER WHITE CLIP)
RV3
(R LEV)
TP3
TP9
TP14
RV23
(Vcc ADJ)
TP15
TP16
TP7
RV4
(G LEV)
TP4
TP8
CN3
RV24
(LIMIT)

PR-167 BOARD (COMPONENT SIDE)

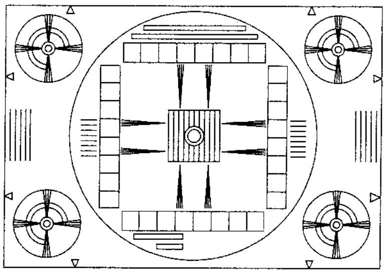
SECTION 3
ALIGNMENT

3-1. PREPARATION

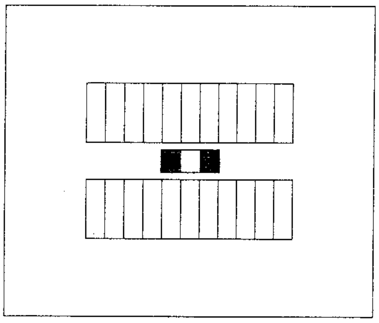
3-1-1. Equipment Required

- Oscilloscope (more than 30 MHz)
- Waveform monitor
- Vectorscope
- Black and white monitor (Sony PVM-91 or equivalent)
- Color Monitor (Sony PVM-1320 or equivalent)
- AC Adaptor (CMA-8ACE)
- Frequency counter

J-6026-100-A Resolution chart



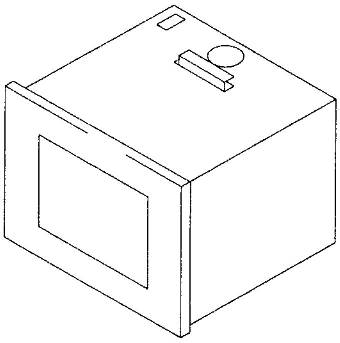
A-6026-130-B Grayscale chart



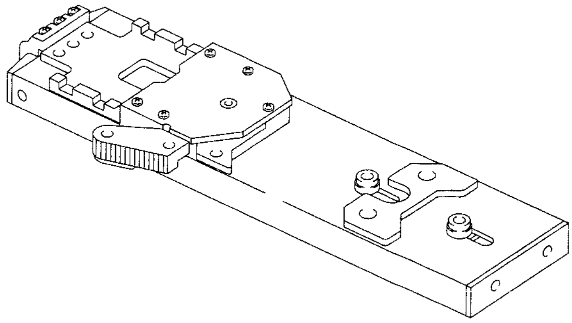
J-6029-140-B PTB-500 Pattern Box

- Light source for test chart

AC90 ~ 240V (PTB-500)

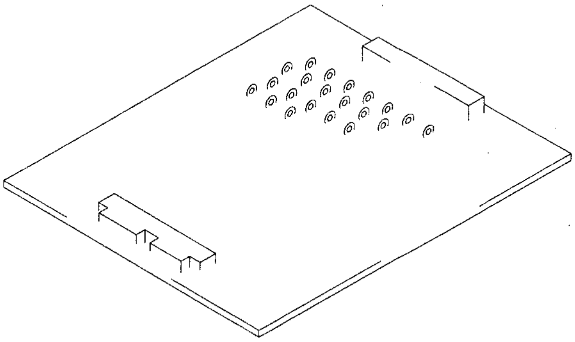


VCT-12 Tripod Adaptor

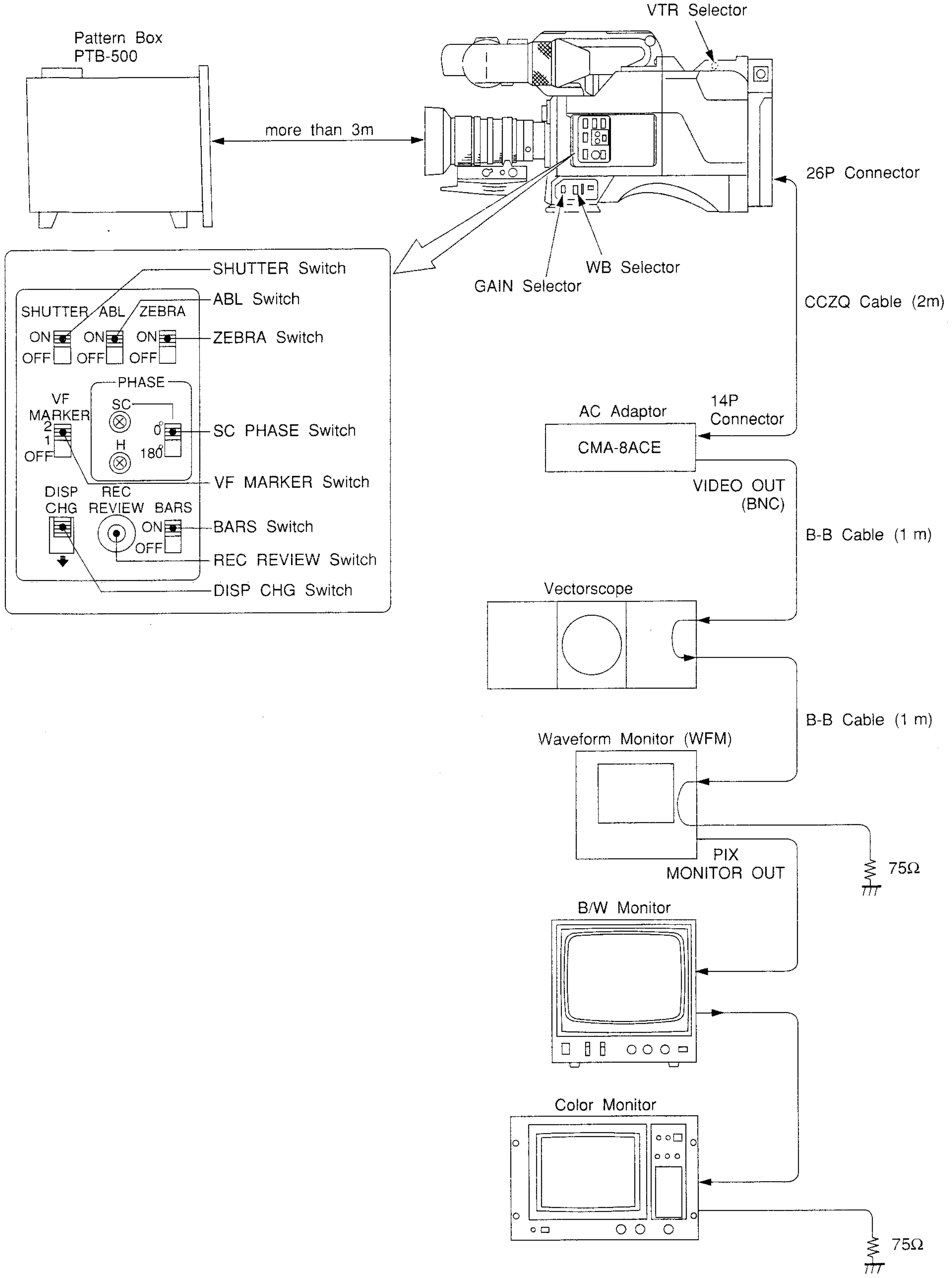


J-6309-200-A Extension board EX-327

- For adjustment of IE-29, PR-167, EN-103 and SG-171



3-1-2. Connection



Pattern Box
PTB-500
more than 3m
VTR Selector
26P Connector
GAIN Selector
WB Selector
CCZQ Cable (2m)
SHUTTER Switch
ABL Switch
ZEBRA Switch
SHUTTER
ABL
ZEBRA
ON
OFF
PHASE
VF
MARKER
2
1
OFF
SC
H
0°
180°
SC PHASE Switch
VF MARKER Switch
DISP
CHG
REC
REVIEW
BARS
BARS Switch
REC REVIEW Switch
DISP CHG Switch
AC Adaptor
CMA-8ACE
14P
Connector
VIDEO OUT
(BNC)
B-B Cable (1 m)
Vectorscope
B-B Cable (1 m)
Waveform Monitor (WFM)
PIX
MONITOR OUT
75Ω
B/W Monitor
Color Monitor
75Ω

3-1-3. Initial Setting

Set the camera switches and controls as follows.

GAIN switch: OdB
WB selector: PRE
FILTER Knob: 1
ABL (side panel): OFF (↓)
SHUTTER (side panel): OFF (↓)
ZEBRA (side panel): OFF (↓)
O/π (side panel): O (↑)
BARS (side panel): OFF (↓)
DTL (SI)/IE-29 board: ON (↑)
FLD/FRM (SI)/DR-107 board: FLD (○)
COL B/W (S2)/EN-103 board: B/W (↓)
RM CHARA (SI)/MB: OFF (↓)
ZONE SIZE (S2)/MB: 90% (↓)

IRIS (LENS): M
ZOOM (LENS): M
VTR SELECT SW (CA-537P): 1

S2 (ADJ/OPE) AT-63 board: ADJ (↑)

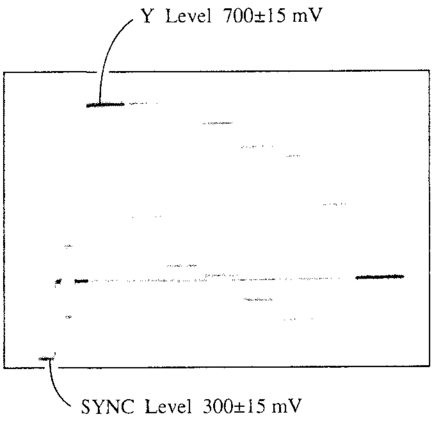
Note: During the adjustment, do not touch the following switches.
- S2 (ADJ/OPE) AT-63 board

3-2. BEFORE ADJUSTMENT

Note: 1. Before adjustment, connect the equipments referring to 3-1-2. Connections. And confirm the following specifications are met to 3-2-1, Color Bar Signal.
2. Before adjustment, set the POWER switch to ON and allow for 10-minute warm-up time.
3. Partial difference between scale and signal level is caused by photographic error.

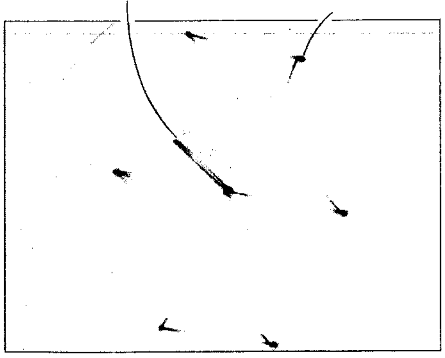
3-2-1. Color Bar Signal

Equipment: Vectorscope, Waveform monitor
Preparation: Set the BARS switch on the side of the camera to ON.
Specifications:



Chroma level
· Adjustment so that the beam spots of each color (R, YL, G, CY, B and MG) are inside the "⊞" mark.

Burst spot 75%



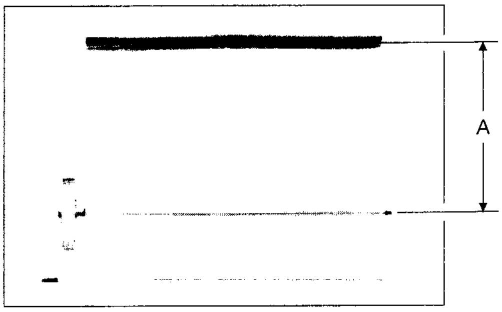
Note: If the specifications are not met, carry out 3-4. ENCODER SYSTEM (PR-167, EN-103 board) adjustment.

3-2-2. Sensitivity Measurement

Object: White Pattern
Light: 3200°K, 2000lux (If the pattern box "PTB-100" is used, set the AUTO mode.)
Equipment: Waveform monitor
Preparetion:

1. Adjust the zoom control so that the white pattern frame touches the underscanned picture frame on the monitor.
2. Manually set the iris control to F8.
3. Set the BARS switch on the side of the camera to OFF.
4. Set the WB selector on the side of the camera to PRE.

Specifications: Ajust so that the white level "A" is 700±20 mV.

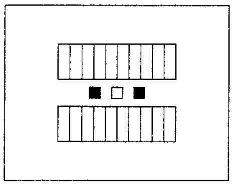


Note: If the specification in not met, perform all ajustments in 3-5. VIDEO PROCESS SYSTEM.

3-2-3. Gamma and Gradation Measurement

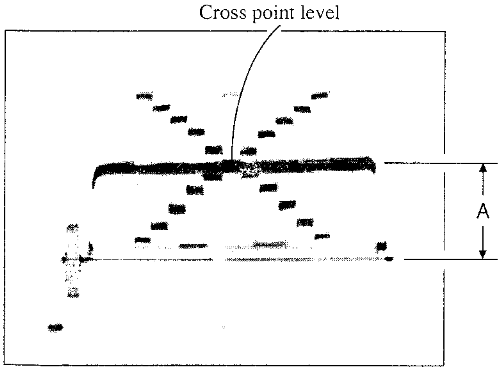
Object: Grayscale chart
(Sony parts number J-6026-130-B)
Light: Pattern box PTB-500
Equipment: Waveform monitor
Preparation:

1. Set the BARS switch on the side of the camera to OFF.
2. Set the WB selector on the side of the camera to PRE.
3. Adjust the zoom control so that the grayscale chart frame touches the underscanned picture frame on the monitor.


(Monitor Screen)

4. Adjust the iris control so that the white level of grayscale chart is 700 mV on the waveform monitor.

Specifications: Adjust so that the cross point level "A" of the grayscale chart is 400±15 mV.



Note: If the specification is not met, carry out 3-5-6. Gch Gamma Balance and Gamma Set Adjustment

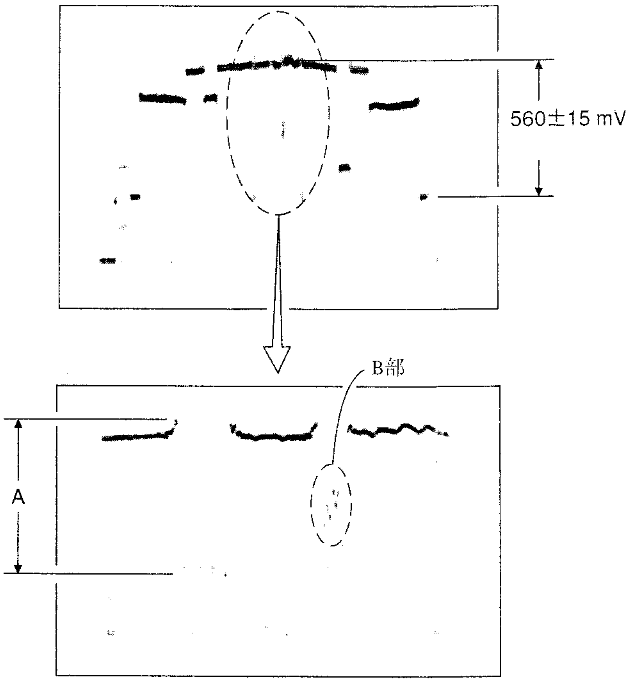
3-2-4. Resolution Measurement

Object: Resolution chart
(Sony parts number J-6026-100-A)
Light: Pattern box PTB-500
Equipment: Waveform monitor. W/B monitor
Preparation:

1. Set the WB selector on the side of the camera to PRE.
2. Set the DTL switch (S1)/IE-29 board to ON.
3. Adjust the zoom control so that the resolution chart frame touches the underscanned frame on the monitor.
4. Adjust the iris control so that the white level of the resolution chart is 560±15 mV on the waveform monitor.
5. Set the "LINE SELECTOR" of the waveform monitor to the 700 TV lines of the resolution chart.
6. Adjust the focus control so that amplitude "A" of the resolution chart is maximized.

Specifications: Four negative peaks corresponding to four black stripes must appear at the 700 TV lines position "B" of the resolution chart on the monitor. The CCD device has some hundreds of picture elements in the horizontal line. When the vertical black stripes corresponding to 700 TV lines are optically positioned between each element in the CCD, the black stripes do not appear on the monitor. It seems that the resolution has been reduced. In this case, pan the camera slightly so that the best resolution is obtained.

Note: If the specification is not met, perform 3-6-6.



RESOLUTION ADJUSTMENT

3-2-5. +8.0V Adjustment

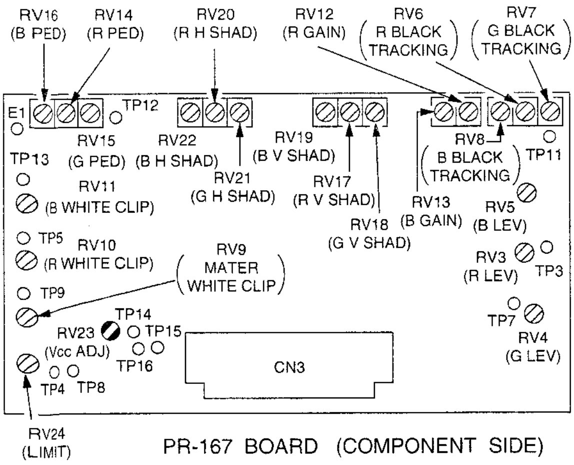
Note: This adjustment has an influence on the PR-167 board, IE-29, and EN-103 board operation. If this adjustment is made, the adjustment items of the video signal system and the detailed signal system must all be confirmed. Make adjustments only in cases when the difference between the voltage at the measuring point and the specification value is ±1% or more.

Equipment: Digital voltmeter
To be extended: PR-167 board
Test point: CN2/10pin/PR-167 board
Adjustment point: ⊘ RV23/PR-167 board
Specification: +8.0±0.1Vde

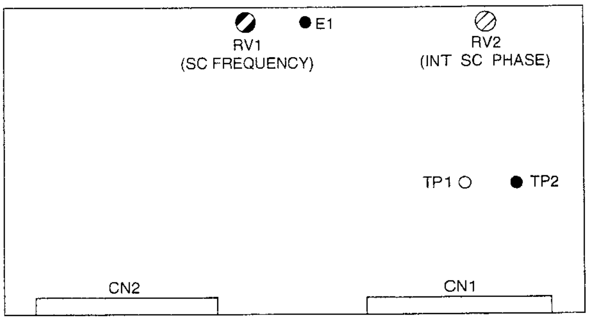
3-3. SYNC SIGNAL SYSTEM (SG-171 board)

3-3-1. Sub Carrier Frequency Adjustment

Equipment: Frequency counter
To be extended: EN-103 board, SG-171 board
Test point: TP2 (GND:E1)/SG-171 board
Adjustment point: ⊘ RV1/SG-171 board
Specification: 4,433,618 Hz


RV16 (B PED)
RV14 (R PED)
RV20 (R H SHAD)
RV12 (R GAIN)
RV6 (R BLACK TRACKING)
RV7 (G BLACK TRACKING)
E1
TP12
RV15 (G PED)
RV22 (B H SHAD)
RV19 (B V SHAD)
RV8 (B BLACK TRACKING)
TP11
TP13
RV11 (B WHITE CLIP)
RV21 (G H SHAD)
RV17 (R V SHAD)
RV13 (B GAIN)
RV5 (B LEV)
RV18 (G V SHAD)
TP5
RV10 (R WHITE CLIP)
RV9 (MATER WHITE CLIP)
RV3 (R LEV)
TP3
TP9
TP14
RV23 (Vcc ADJ)
TP15
TP16
CN3
TP7
RV4 (G LEV)
TP4
TP8
RV24 (LIMIT)

PR-167 BOARD (COMPONENT SIDE)


E1
RV1 (SC FREQUENCY)
RV2 (INT SC PHASE)
TP1
TP2
CN2
CN1

SG-171 BOARD (COMPONENT SIDE)

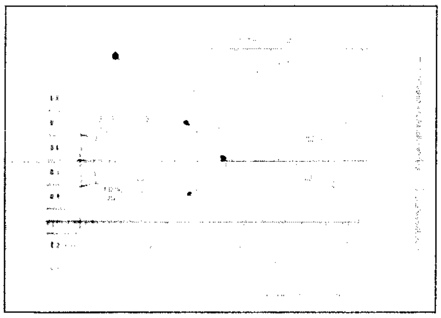
3-3-2. INT SC Phase Adjustment

Note: The procedure stated below applies to the adjustments where the Tektronix 1750 is used. If any other measuring instrument is used, observe the instructions given in the operation manual attached to it.

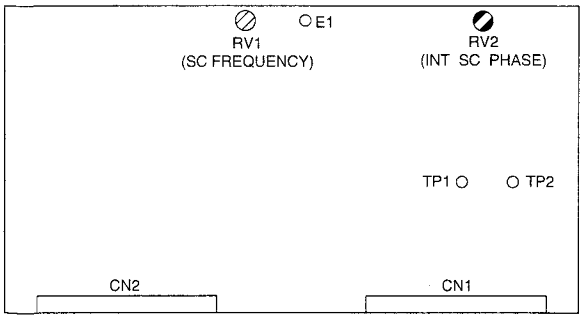
Equipment: SC-H Phase measuring instrument
Preparation:

- Disconnect the vectorscope, and connect the Tektronix 1750 instead.
- Put the Tektronix 1750 into the SC-H mode.

To be extended: SG-171 board
Test point: VIDEO OUT connector
Adjustment point: ⊘ RV2 (IN SC PHASE)/SG-171 board
Specification: Shown below.
Adjustment: Position the luminous line of bust (SC) and the luminescent spot of H properly.



Note: After the adjustment, disconnect the Tektronix 1750, and connect the vectorscope instead.

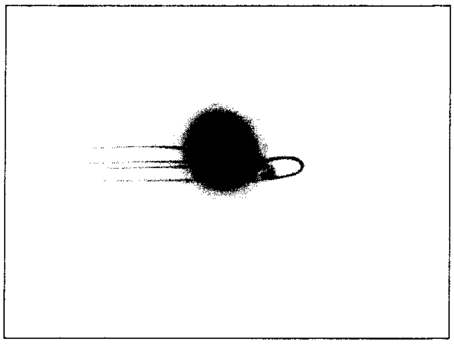

RV1
(SC FREQUENCY)
E1
RV2
(INT SC PHASE)
TP1
TP2
CN2
CN1

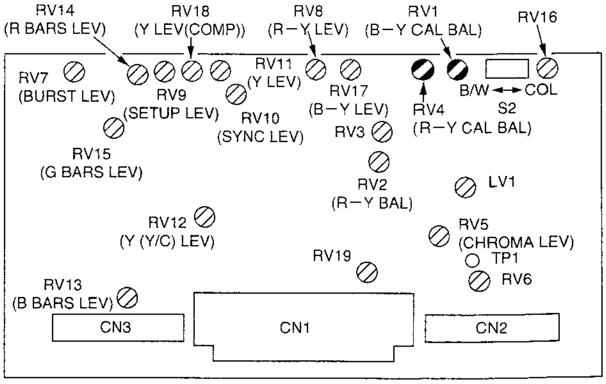
SG-171 BOARD (COMPONENT SIDE)

3-4. ENCODER SYSTEM (EN-103 board)

3-4-1. Carrier Balance Adjustment

Equipment: Vectorscope (MAX GAIN)
Preparation: Set the BARS switch on the side of the camera to ON
To be extended: EN-103 board
Adjustment: Adjust ⊘ RV1 and ⊘ RV4/EN-103 board so that the white beam spot is in the center of the vectorscope.




RV14
(R BARS LEV)
RV18
(Y LEV(COMP))
RV8
(R−Y LEV)
RV1
(B−Y CAL BAL)
RV16
RV7
(BURST LEV)
RV9
(SETUP LEV)
RV11
(Y LEV)
RV10
(SYNC LEV)
RV17
(B−Y LEV)
RV4
(R−Y CAL BAL)
B/W ↔ COL
S2
RV3
RV15
(G BARS LEV)
RV2
(R−Y BAL)
LV1
RV12
(Y (Y/C) LEV)
RV5
(CHROMA LEV)
TP1
RV19
RV6
RV13
(B BARS LEV)
CN3
CN1
CN2

EN-103 BOARD (COMPONENT SIDE)

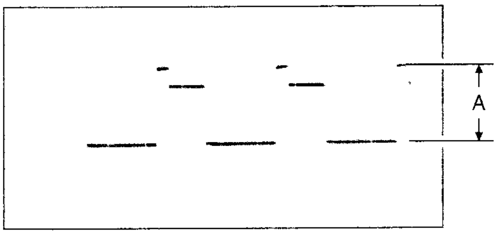
3-4-2. BARS Level Adjustment

Equipment:
- Oscilloscope.
- Waveform monitor

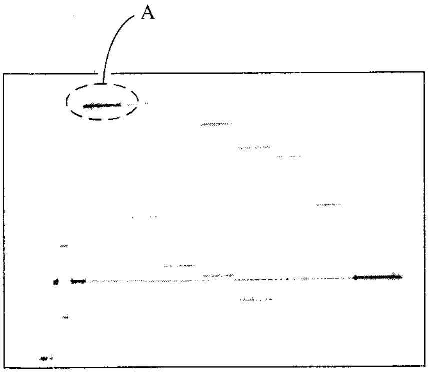
Preparation:
- Set the BARS switch on the side of the camera to ON.
- Set the S1 switch on the IF-313 board (CA-537P) to RGB.

To be extended: EN-103 board
Trigger: HD (B21 pin/extension board)
Adjustment:

1. Adjust ⊘ RV15/EN-103 board so that the video level at A6 pin (GND:A8 pin)/extension board is 1.4±0.02 V.



2. Adjust ⊘ RV13 board and ⊘ RV14/EN-103 board in turn so that the carrier leak "A" of the gray section at the VIDEO OUT terminal on the side of the camera is minimized.



3-4-3. Color Vector Adjustment

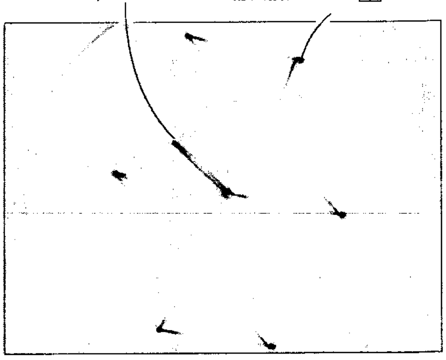
Equipment: Vectorscope
Preparation:
- Set the GAIN switch on the vectorscope to 75%.
- Adjust "PHASE" control on the vectorscope so that the burst spot is set to the 75% axis.
- Set the BARS switch on the side of the camera to ON.

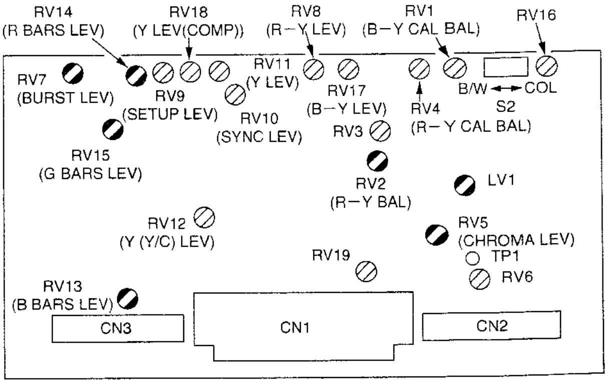
To be extended: EN-103 board
Adjustment:

1. Adjust ⊘RV2, ⊘RV5, ⊘LV1/EN,103 board so that the beam spots of eachcolor are inside the " ⊞ " mark.
2. Adjust ⊘ RV7/EN-103 board so that the burst Level is set to the 75% posiotion.

Chroma level
· Adjustment so that the beam spots of each color (R, YL, G, CY, B and MG) are inside the "⊞ " mark.

Burst spot 75%



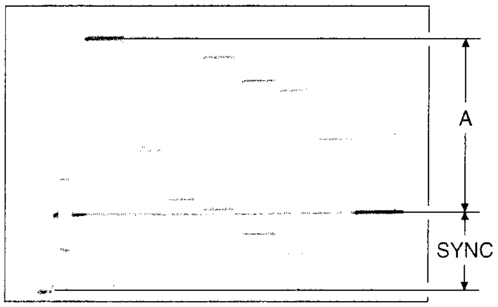

RV14
(R BARS LEV)
RV18
(Y LEV(COMP))
RV8
(R−Y LEV)
RV1
(B−Y CAL BAL)
RV16
RV7
(BURST LEV)
RV9
(SETUP LEV)
RV11
(Y LEV)
RV10
(SYNC LEV)
RV17
(B−Y LEV)
RV3
RV4
(R−Y CAL BAL)
B/W ◄–► COL
S2
RV15
(G BARS LEV)
RV2
(R−Y BAL)
LV1
RV12
(Y (Y/C) LEV)
RV19
RV5
(CHROMA LEV)
TP1
RV6
RV13
(B BARS LEV)
CN3
CN1
CN2

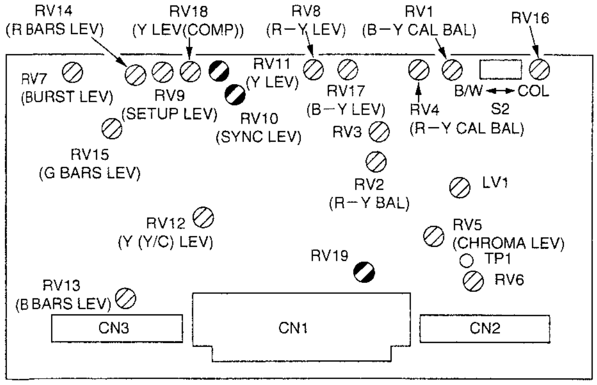
EN-103 BOARD (COMPONENT SIDE)

3-4-4. Y.SYNC Level Adjustment

Equipment: Waveform monitor
Preparation: Set the BARS switch on the side of the camera to ON.
To be extended: EN-103 board
Adjustment:

1. Adjust ⊘ RV11/EN-103 board so that the A level of the color bars signal is 700±10 mV.
2. Adjust ⊘ RV10/EN-103 board so that the SYNC level of the color bars signal is 300±10 mV.





RV14
(R BARS LEV)
RV18
(Y LEV(COMP))
RV8
(R−Y LEV)
RV1
(B−Y CAL BAL)
RV16
RV7
(BURST LEV)
RV9
(SETUP LEV)
RV11
(Y LEV)
RV10
(SYNC LEV)
RV17
(B−Y LEV)
RV4
(R−Y CAL BAL)
B/W◄►COL
S2
RV3
RV15
(G BARS LEV)
RV2
(R−Y BAL)
LV1
RV12
(Y (Y/C) LEV)
RV5
(CHROMA LEV)
TP1
RV19
RV6
RV13
(B BARS LEV)
CN3
CN1
CN2

EN-103 BOARD (COMPONENT SIDE)

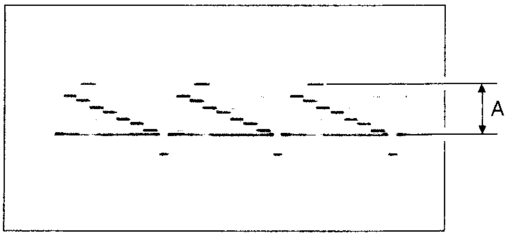
3-4-5. CONPONENT Y Level Adjustment

Equipment: Oscilloscope
Preparation:

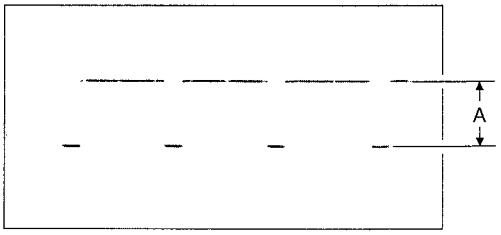
- Set the S1 switch on the IF-313 board (CA-537P) to CENTER POSITION
- Set the BARS switch on the side of the camera to ON.

To be extended: EN-103 board
Test point: A6 pin (GND:A8 pin)/EN-103 board
Trigger: HD (B21 pin/extension board)
Adjustment:

1. Adjust ⊘ RV18/EN-103 board so that the "A" level is 700 ± 10 mV

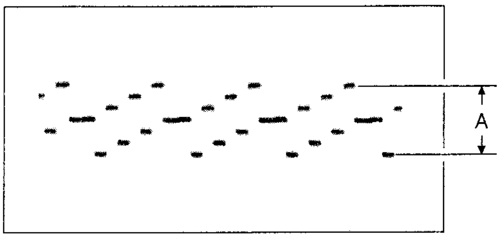


2. Set the BARS switch on the side of camera to OFF
3. Lens iris → OPEN
4. Set the GAIN switch on the side of camera to 18 dB
5. Turn the control on the ⊘ RV19/EN-103 board from the left extreme to theright extreme position and stop turning when the level "A" stops changing.
6. After this adjustment is completed, set the GAIN switch on the side ofthe camera to O dB.



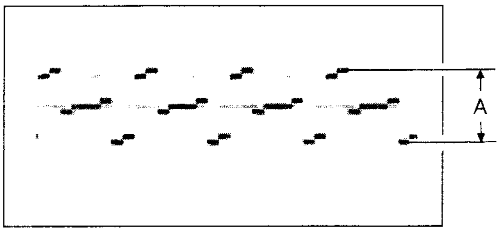
3-4-6. B-Y OUT Level Adjustment

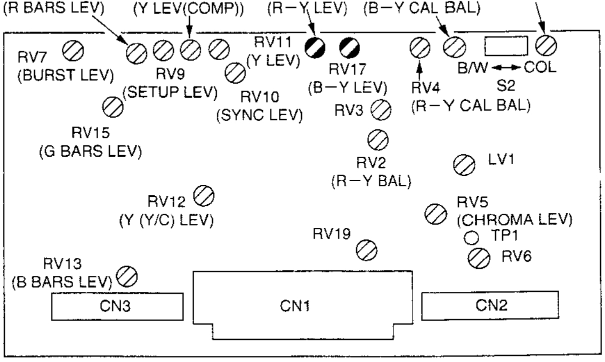
Equipment: Oscilloscope
Preparation: Set the BARS switch on the side of the camera to ON.
To be extended: EN-103 board
Test point: A5 pin (GND:A8 pin)/extension board
Trigger: HD (B21 pin/extension board)
Adjustment point: ⊘ RV17/EN-103 board
Specifications: A=525±10 mV



3-4-7. R-Y OUT Level Adjustment

Equipment: Oscilloscope
Preparation: Set the BARS switch on the side of teh camera to ON.
To be extended: EN-103 board
Test point: A7 pin (GND:A8 pin)/extension board
Trigger: HD (B21 pin/extension board
Adjustment point: ⊘ RV8/EN-103 board
Specifications: A=525±10 mV



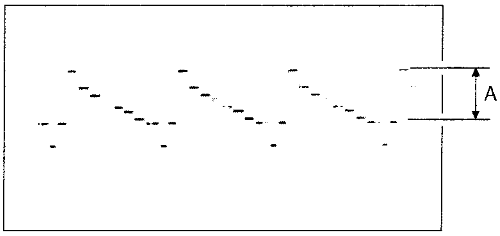

RV14
(R BARS LEV)
RV18
(Y LEV(COMP))
RV8
(R−Y LEV)
RV1
(B−Y CAL BAL)
RV16
RV7
(BURST LEV)
RV9
(SETUP LEV)
RV11
(Y LEV)
RV17
(B−Y LEV)
RV4
(R−Y CAL BAL)
B/W ↔ COL
S2
RV10
(SYNC LEV)
RV3
RV15
(G BARS LEV)
RV2
(R−Y BAL)
LV1
RV12
(Y (Y/C) LEV)
RV5
(CHROMA LEV)
TP1
RV6
RV19
RV13
(B BARS LEV)
CN3
CN1
CN2

EN-103 BOARD (COMPONENT SIDE)

3-4-8. Y/C Y Level Adjustment

Note: Before this adjustment, carry out 3-4-4 color vector adjustment

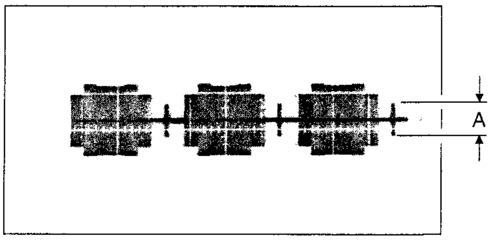
Equipment: Oscilloscope
Preparation: Set the BARS switch on the side of camera to ON
To be extended: EN-103 board
Test point: A9 pin (GND:A10 pin)/extension board
Adjustment: ⊘RV12/EN-103 board so that the white level "A" of Y signal is 700 ±10 mV.

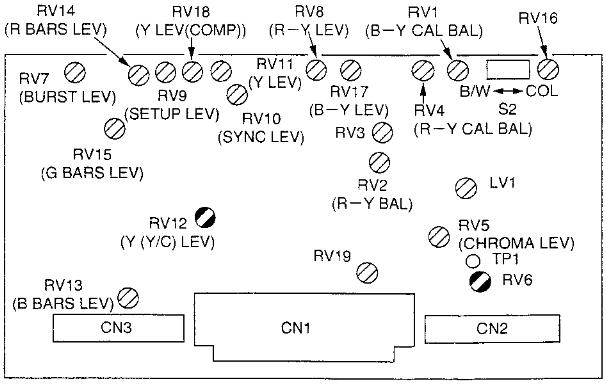


3-4-9. Y/C Chroma Level Adjustment

Note: Before this adjustment, carry out 3-4-4 color vector adjustment

Equipment: Oscilloscope
Preparation: Set the BARS switch on the side of camera to ON
To be extended: EN-103 board
Test point: A11 pin (GND:A12 pin)/extension board
Adjustment: ⊘RV6/EN-103 board so that the burst level "A" in the chroma signal is 300±5 mV




RV14
(R BARS LEV)
RV18
(Y LEV(COMP))
RV8
(R−Y LEV)
RV1
(B−Y CAL BAL)
RV16
RV7
(BURST LEV)
RV9
(SETUP LEV)
RV11
(Y LEV)
RV10
(SYNC LEV)
RV17
(B−Y LEV)
RV4
(R−Y CAL BAL)
B/W ↔ COL
S2
RV3
RV15
(G BARS LEV)
RV2
(R−Y BAL)
LV1
RV12
(Y (Y/C) LEV)
RV5
(CHROMA LEV)
TP1
RV19
RV6
RV13
(B BARS LEV)
CN3
CN1
CN2

EN-103 BOARD (COMPONENT SIDE)

3-4-10. Zebra Adjustment

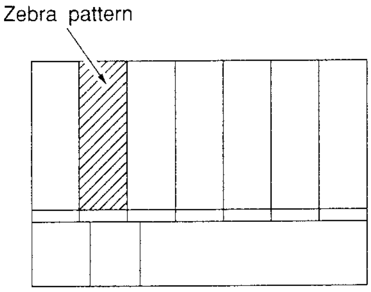
Equipment: Viewfinder

Preparation:

- Set the BARS switch on the side of the camera to ON.
- Set the ZEBRA switch on the side of the camera to ON.

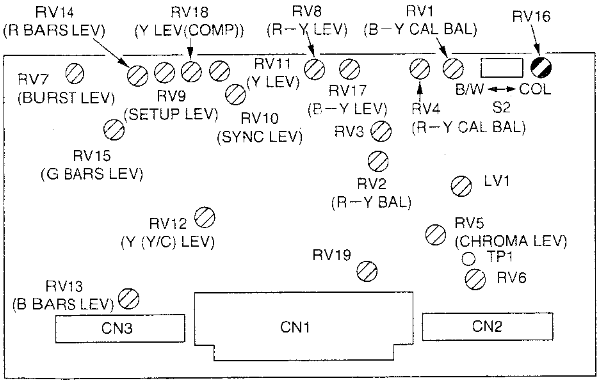
To be extended: EN-103 board

Adjustment: Adjust ⊘ RV16/EN-103 board so that the ZEBRA pattern is displayed at the second color bar from the left on the view finder screen.

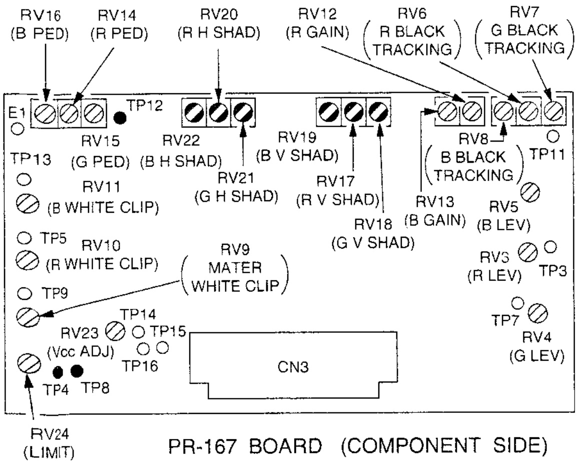

Zebra pattern

(Viewfinder Screen)

Note: After this adjustment is conpleted, set ZEBRA switch on the side of camera to OFF.


RV14
(R BARS LEV)
RV18
(Y LEV(COMP))
RV8
(R−Y LEV)
RV1
(B−Y CAL BAL)
RV16
RV7
(BURST LEV)
RV9
(SETUP LEV)
RV11
(Y LEV)
RV10
(SYNC LEV)
RV17
(B−Y LEV)
RV3
B/W↔COL
S2
RV4
(R−Y CAL BAL)
RV15
(G BARS LEV)
RV2
(R−Y BAL)
LV1
RV12
(Y (Y/C) LEV)
RV5
(CHROMA LEV)
TP1
RV19
RV6
RV13
(B BARS LEV)
CN3
CN1
CN2

EN-103 BOARD (COMPONENT SIDE)


RV16
(B PED)
RV14
(R PED)
RV20
(R H SHAD)
RV12
(R GAIN)
RV6
(R BLACK TRACKING)
RV7
(G BLACK TRACKING)
E1
TP12
RV15
(G PED)
RV22
(B H SHAD)
RV19
(B V SHAD)
RV8
(B BLACK TRACKING)
TP11
TP13
RV11
(B WHITE CLIP)
RV21
(G H SHAD)
RV17
(R V SHAD)
RV13
(B GAIN)
RV5
(B LEV)
RV18
(G V SHAD)
TP5
RV10
(R WHITE CLIP)
RV9
(MATER WHITE CLIP)
RV3
(R LEV)
TP3
TP9
TP14
RV23
(Vcc ADJ)
TP15
TP16
TP4
TP8
TP7
RV4
(G LEV)
CN3
RV24
(LIMIT)

PR-167 BOARD (COMPONENT SIDE)

3-5. VIDEO PROCESS SYSTEM

3-5-1. H/V Shading Adjustment

Object: White pattern

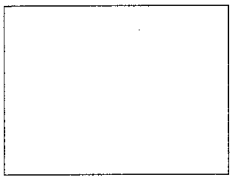
Equipment: Oscilloscope

Preparation: Set the WB selector on the side of the camera to PRE.

To be extended: PR-167 board

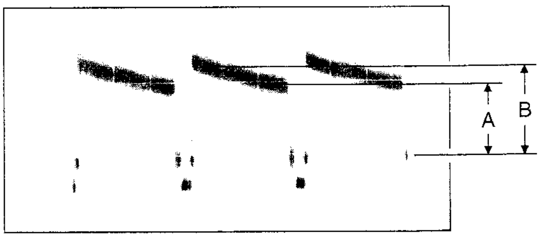
Adjustment:

1. Adjust the zoom control so that the white pattern frame touches the underscanned picture frame on the screen.



(Monitor Screen)

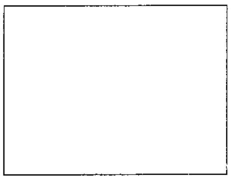
2. Set the diaphragm to F≒11.
   <Trigger:HD (A19/extension board)>
3. Make the waveform of the TP4/PR-167 board flat by using ⊘ RV20/PR-167board. B≒A
4. Make the waveform of the TP8/PR-167 board flat by using ⊘ RV21/PR-167board. B≒A
5. Make the waveform of the TP12/PR-167 board flat by using ⊘ RV22/PR-167 board. B≒A <Trigger: HD (A25/extension board)>
6. Make the waveform of the TP4/PR-167 board flat by using ⊘ RV17/PR-167board. B≒A
7. Make the waveform of the TP8/PR-167 board flat by using ⊘ RV18/PR-167board. B≒A
8. Make the waveform of the TP12/PR-167 board flat by using ⊘ RV19/PR-167 board. B≒A



3-5-2. Gch Video Level Adjustment

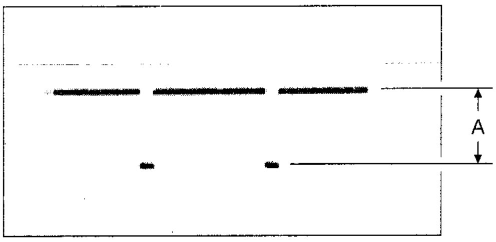
Object: White pattern
Equipment: Oscilloscope
Preparation: Set the WB selector on the side of the camera to PRE.
To be extended: PR-167 board
Trigger: HD (A19/extension board)
Adjustment:

1. Adjust the zoom control so that the white pattern frame touches the underscanned picture frame on the screen.

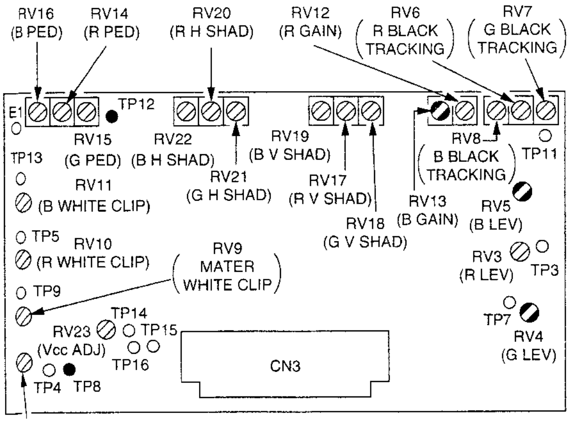


(Monitor Screen)

2. Lens iris→F≒8
3. Adjust ⊘ RV4/PR-167 board so that the video level "A" at TP8/PR-167 board is 680±10 mV.



Note: Carry out this adjustment through 3-5-4 Rch Video Level Adjustment keeping the iris control set to F8.


RV16
(B PED)
RV14
(R PED)
RV20
(R H SHAD)
RV12
(R GAIN)
RV6
(R BLACK TRACKING)
RV7
(G BLACK TRACKING)
E1
TP12
RV15
(G PED)
RV22
(B H SHAD)
RV21
(G H SHAD)
RV19
(B V SHAD)
RV17
(R V SHAD)
RV18
(G V SHAD)
RV8
(B BLACK TRACKING)
TP11
RV13
(B GAIN)
RV5
(B LEV)
TP13
RV11
(B WHITE CLIP)
TP5
RV10
(R WHITE CLIP)
RV9
(MATER WHITE CLIP)
TP9
RV3
(R LEV)
TP3
TP7
RV4
(G LEV)
TP14
RV23
(Vcc ADJ)
TP15
TP16
CN3
TP4
TP8
RV24
(LIMIT)

PR-167 BOARD (COMPONENT SIDE)

3-5-3. Bch Video Level and Pre-gain Adjustment

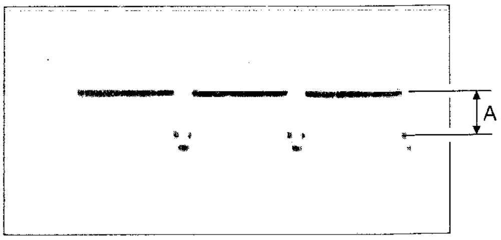
Note: Be sure to carry out 3-5-2 Gch Video Level Adjustment before this adjustment.

Object: White pattern
Equipment: Oscilloscope
Preparation: Set the WB selector on the side of the camera to PRE.
To be extended: PR-167 board
Trigger: HD (A19/extension board)
Adjustment:

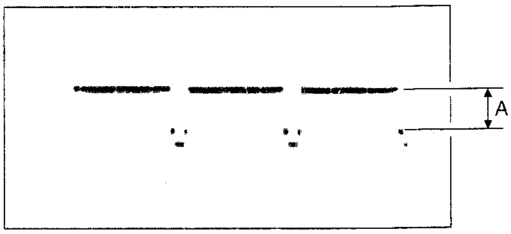
1. Adjust the zoom control so that the white pattern frame touches the underscanned picture frame on the monitor.

(Monitor Screen)

2. Adjust ⊘ RV5/PR-167 board so that the video level "A" at TP11/PR-167 board is 180±5 mV.



3. Adjust ⊘ RV13/PR-167 board so that the video level "A" at TP12/PR-167 board is 680±10 mV.

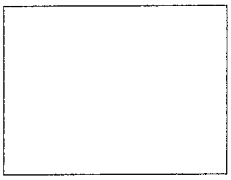


3-5-4. Rch Video Level and Pre-gain Adjustment

Note: Be sure to carry out 3-5-3 Bch Level Adjustment before this adjustment.

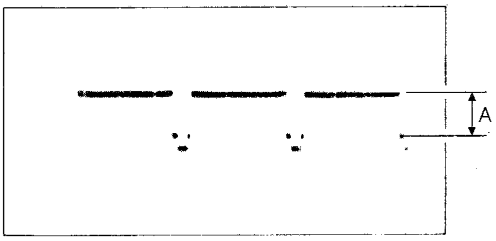
Object: White pattern
Equipment: Oscilloscope
Preparation: Set the BARS switch on the side of the camera to OFF. Set the WB selector on the side of the camera to PRE.
Test point: TP4 (GND:E1)/PR-167 board
Adjustment:

1. Adjust the zoom control so that the white pattern frame touches the underscanned picture on the monitor.

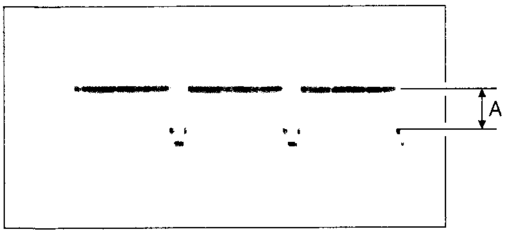


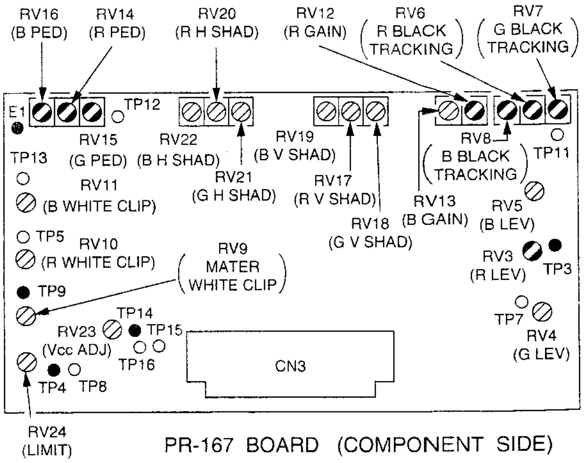
(Monitor Screen)

2. Adjust ⊘RV3/PR-167 board so that the video level "A" at TP3/PR-167 board is 340±5 mV.



3. Adjust ⊘RV12/PR-167 board so that the video level "A" at TP4/PR-167 board is 680±10 mV.




RV16 (B PED)
RV14 (R PED)
RV20 (R H SHAD)
RV12 (R GAIN)
RV6 (R BLACK TRACKING)
RV7 (G BLACK TRACKING)
E1
TP12
RV15 (G PED)
RV22 (B H SHAD)
RV19 (B V SHAD)
RV8 (B BLACK TRACKING)
TP11
TP13
RV11 (B WHITE CLIP)
RV21 (G H SHAD)
RV17 (R V SHAD)
RV18 (G V SHAD)
RV13 (B GAIN)
RV5 (B LEV)
TP5
RV10 (R WHITE CLIP)
RV9 (MATER WHITE CLIP)
RV3 (R LEV)
TP3
TP9
TP14
RV23 (Vcc ADJ)
TP15
TP16
TP4
TP8
CN3
TP7
RV4 (G LEV)
RV24 (LIMIT)

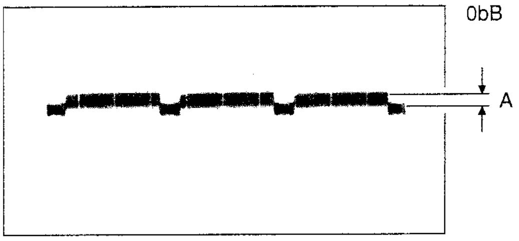
PR-167 BOARD (COMPONENT SIDE)

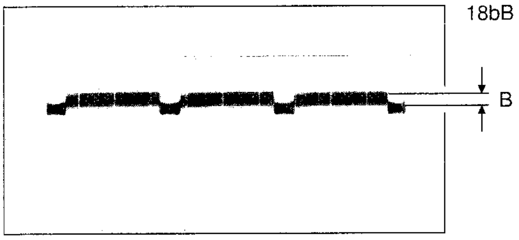
3-5-5. Black Set and Pedestal Adjustments

Lens iris: Close "C"
Equipment: Oscilloscope, Vectorscope (MAX GAIN)
Preparation: Set the DTL (S1) switch on the IE-29 board to OFF.
To be extended: PR-167 board
Test point: TP9 (GND:E1)/PR-167 board (Connect at 10 KΩ resistor between the oscilloscope probe and TP9.)

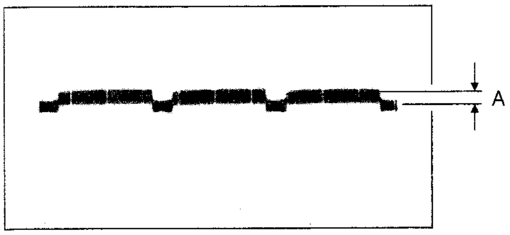
Adjustment:

1. Adjust ⊘ RV7/PR-167 board so that pedestal level does not change when the GAIN switch on the side of the camera is switched over from O dB to 18 dB (A=B).

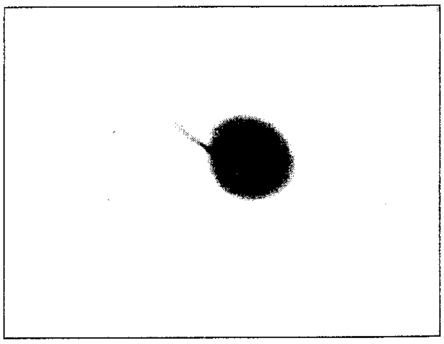




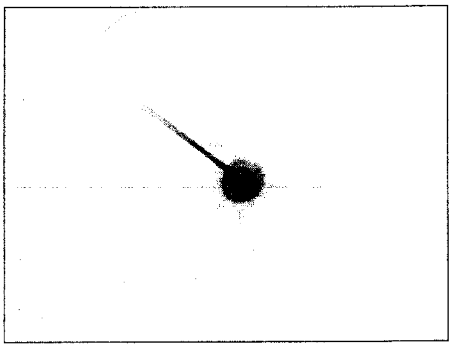
2. Set the GAIN switch on the side of the camera to O dB.
3. Adjust ⊘ RV15/PR-167 board so that the pedestal level "A" is 40±5 mV.



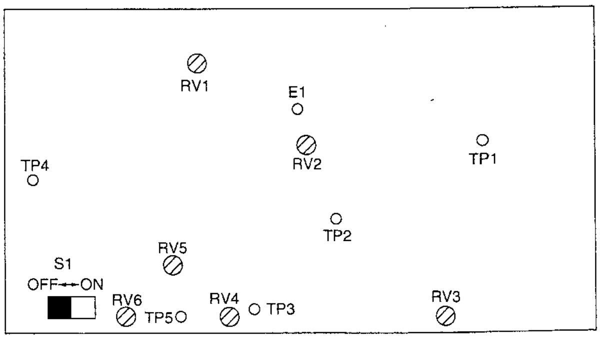
4. Set the GAIN switch on the side of the camera to 18 dB.
5. Adjust ⊘ RV6 and ⊘ RV8/PR-167 board so that the beam spot is in the center of the vectorscope.



6. Set the GAIN switch on the side of the camera to O dB.
7. Adjust ⊘ RV14 and ⊘ RV16/PR-167 board so that the beam spot is in thecenter of the vectorscope.



8. Repeat step 4 through step 7 several times.
9. Set the GAIN switch on the side of the camera to O dB.
10. Set the DTL (S1) switch on the IE-29 board to ON.

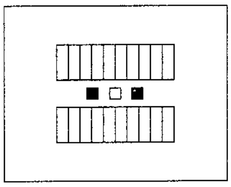


IE-29 BOARD (COMPONENT SIDE)

3-5-6. Gch Gamma Balance and Gamma Set Adjustment

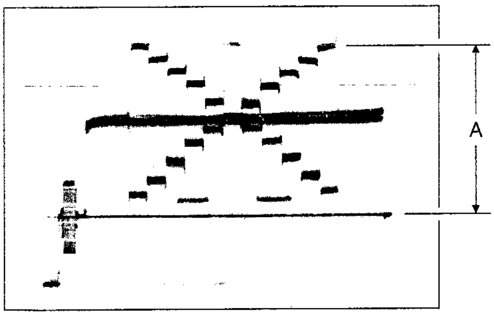
Object: Grayscale chart
Equipment: Oscilloscope
To be extended: PR-167 board
Test point: TP9 (GND:E1)/PR-167 board
Trigger: HD (A19/extension board)
Adjustment:

1. Adjust the zoom control so that the grayscale chart frame touches the underscanned picture frame on the monitor.

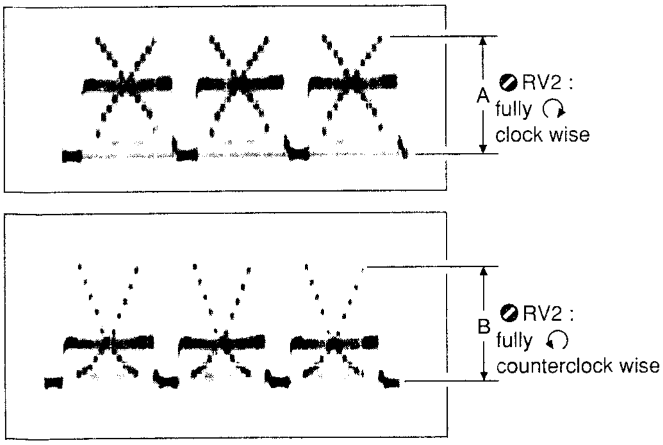


(Monitor Screen)

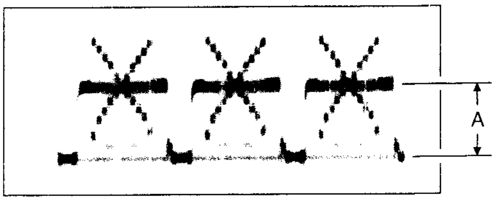
2. Adjust the iris control so that the video level "A" is 700 mV on the waveform monitor. (F≒8)

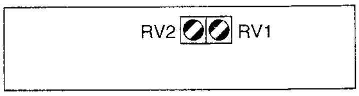


3. Adjust ⊘RV1/BP-013G board so that the white level of the video signal does not change. When ⊘RV2/BP-013G board is turned either fully counterclockwise or fully clockwise. (A=B)

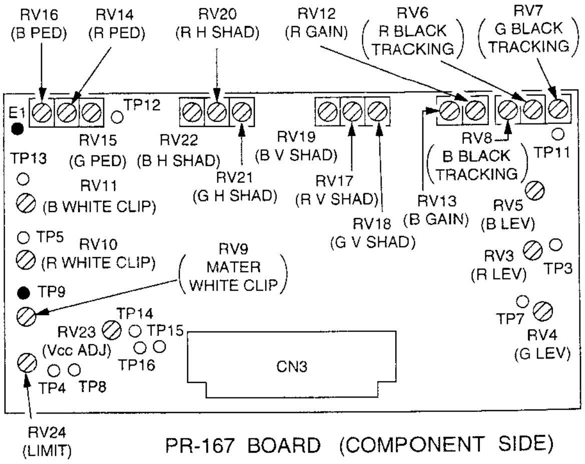

A
⊘RV2 :
fully ↻
clock wise
B
⊘RV2 :
fully ↺
counterclock wise

4. Adjust ⊘RV2/BP-013G board so that the cross-point level "A" of the grayscale chart is 900±10 mV.





BP-013G BOARD
(COMPONENT SIDE)

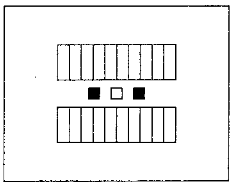

RV16 (B PED)
RV14 (R PED)
RV20 (R H SHAD)
RV12 (R GAIN)
RV6 (R BLACK TRACKING)
RV7 (G BLACK TRACKING)
E1
TP12
RV15 (G PED)
RV22 (B H SHAD)
RV19 (B V SHAD)
RV8
B BLACK TRACKING
TP11
TP13
RV11 (B WHITE CLIP)
RV21 (G H SHAD)
RV17 (R V SHAD)
RV13 (B GAIN)
RV5 (B LEV)
RV18 (G V SHAD)
TP5
RV10 (R WHITE CLIP)
RV9 (MATER WHITE CLIP)
RV3 (R LEV)
TP3
TP9
TP14
RV23 (Vcc ADJ)
TP15
TP16
TP7
RV4 (G LEV)
CN3
TP4
TP8
RV24 (LIMIT)

PR-167 BOARD (COMPONENT SIDE)

3-5-7. Rch Gamma Balance Adjustment

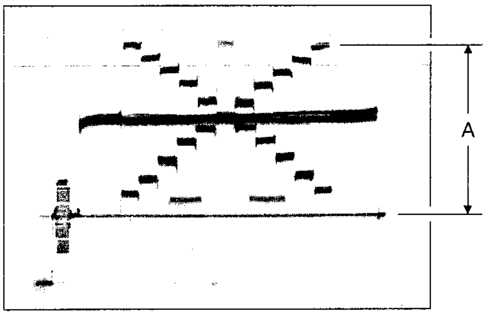
Object: Grayscale chart
Equipment: Oscilloscope
Preparation: Set the BARS selector on the side of camera to PRE
To be extended: PR-167 board
Test point: TP5 (GND:E1)/PR-167 board
Trigger: HD (A19/extension board)
Adjustment:

1. Adjust the zoom control so that the grayscale chart frame touches the underscanned picture frame on the monitor.

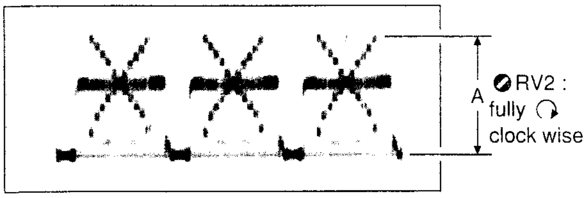


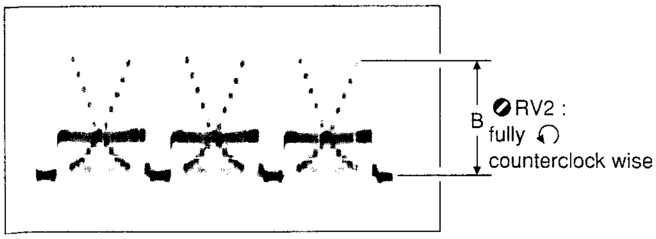
(Monitor Screen)

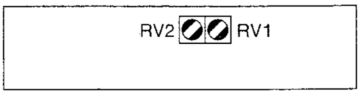
2. Adjust the iris control so that the video level "A" is 700 mV on the waveform monitor.



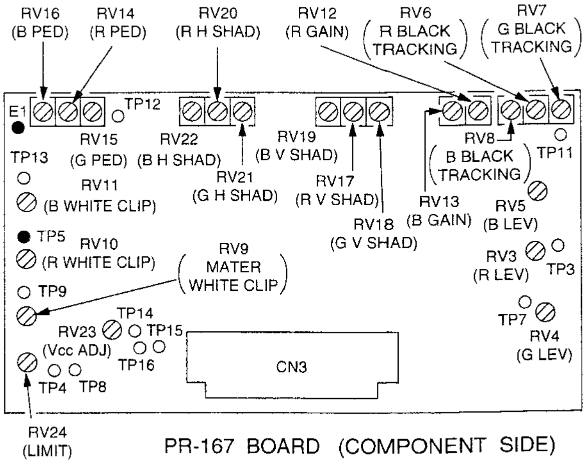
3. Adjust⊘RV1/BP-013R board so that the white level of the video signal at TP5/PR-167 board does not change when⊘RV2/BP-013R board is turned either fully counterclockwise or fully clockwise. (A=B)







BP-013R BOARD
(COMPONENT SIDE)

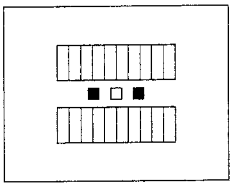

RV16 (B PED)
RV14 (R PED)
RV20 (R H SHAD)
RV12 (R GAIN)
RV6 (R BLACK TRACKING)
RV7 (G BLACK TRACKING)
E1
TP12
RV15 (G PED)
RV22 (B H SHAD)
RV19 (B V SHAD)
RV8
TP11
TP13
RV11 (B WHITE CLIP)
RV21 (G H SHAD)
RV17 (R V SHAD)
(B BLACK TRACKING)
RV13 (B GAIN)
RV5 (B LEV)
RV18 (G V SHAD)
TP5
RV10 (R WHITE CLIP)
RV9 (MATER WHITE CLIP)
RV3 (R LEV)
TP3
TP9
TP14
RV23 (Vcc ADJ)
TP15
TP16
TP4
TP8
CN3
TP7
RV4 (G LEV)
RV24 (LIMIT)

PR-167 BOARD (COMPONENT SIDE)

3-5-8. Bch Gamma Balance Adjustment

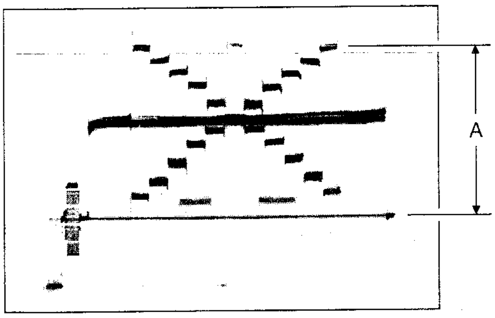
Object: Grayscale chart
Equipment: Oscilloscope
Preparation: Set the BARS selector on the side of the camera to PRE.
To be extended: PR-167 board
Test point: TP11 (GND:E1)/PR-167 board
Trigger: HD (A19/extension board)
Adjustment:

1. Adjust the zoom control so that the grayscale chart frame touches the underscanned picture frame on the monitor.

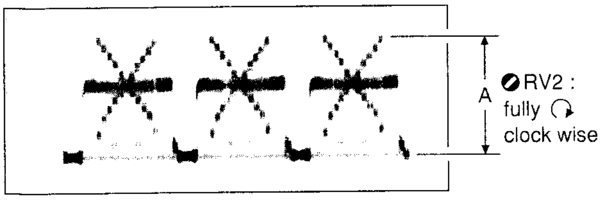


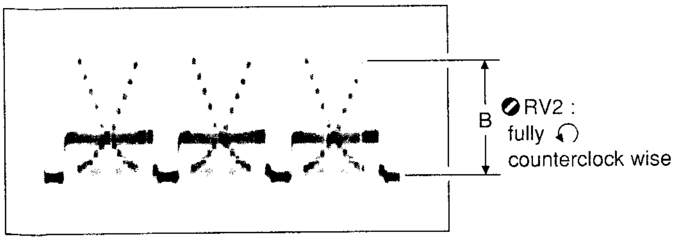
(Monitor Screen)

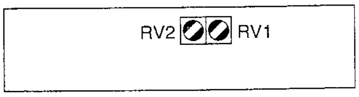
2. Adjust the iris control so that the video level "A" is 700 mV on the waveform monitor.



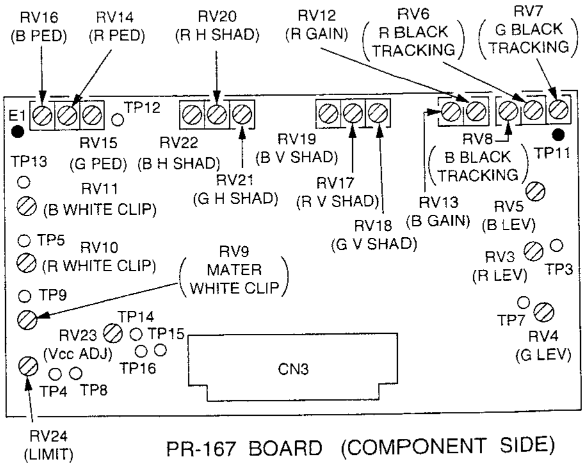
3. Adjust⊘RV1/BP-013 board so that the white level of the video signal at TP11/PR-167 board does not change when⊘RV2/BP-013 board is turned either fully counterclockwise or fully clockwise.







BP-013B BOARD
(COMPONENT SIDE)

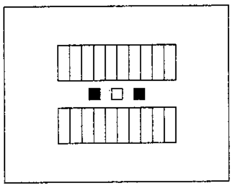

RV16 (B PED)
RV14 (R PED)
RV20 (R H SHAD)
RV12 (R GAIN)
RV6 (R BLACK TRACKING)
RV7 (G BLACK TRACKING)
E1
TP12
RV15 (G PED)
RV22 (B H SHAD)
RV21 (G H SHAD)
RV19 (B V SHAD)
RV17 (R V SHAD)
RV18 (G V SHAD)
RV8 (B BLACK TRACKING)
TP11
TP13
RV11 (B WHITE CLIP)
RV13 (B GAIN)
RV5 (B LEV)
TP5
RV10 (R WHITE CLIP)
RV9 (MATER WHITE CLIP)
RV3 (R LEV)
TP3
TP9
TP14
RV23 (Vcc ADJ)
TP15
TP16
TP4
TP8
CN3
TP7
RV4 (G LEV)
RV24 (LIMIT)

PR-167 BOARD (COMPONENT SIDE)

3-5-9. R/B ch Gamma Set and Preset Adjustment

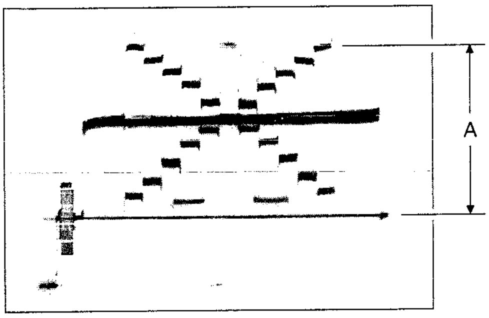
Object: Grayscale chart
Equipment: Waveform monitor, Vectorscope (MAX GAIN)
Adjustment:

1. Adjust the zoom control so that grayscale chart frame touches the underscanned picture frame on the monitor.



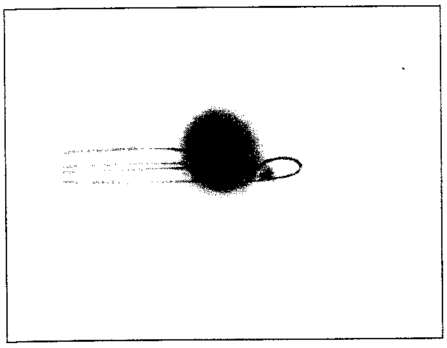
(Monitor Screen)

2. Adjust the iris control so that the white level "A" is 700 mV on the waveform monitor.

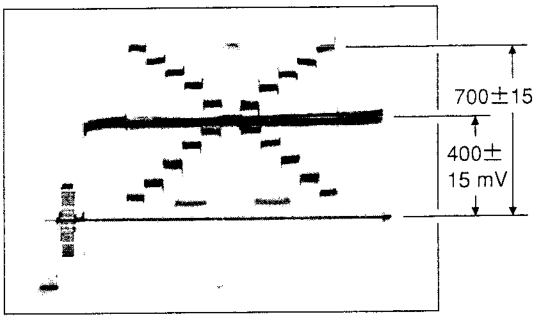


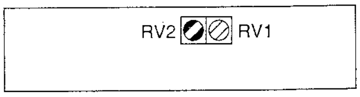
3. ⊘ RV12 (R GAIN)/PR-167 board
   ⊘ RV13 (B GAIN)/PR-167 board
   ⊘ RV2 (Rr ADJ)/BP-013R board
   ⊘ RV2 (Br ADJ)/BP-013B board

   Alternately adjust the above four conterols several times so that the beam spot is in the center of vectorscope.

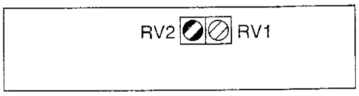


4. After the adjustment, the following specifications must be met. If not, perform 3-5-1 H/V Shading Adjustment once more.

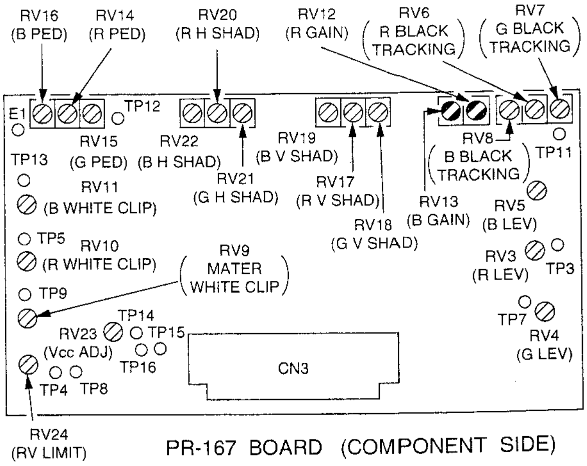




BP-013R BOARD
(COMPONENT SIDE)



BP-013B BOARD
(COMPONENT SIDE)

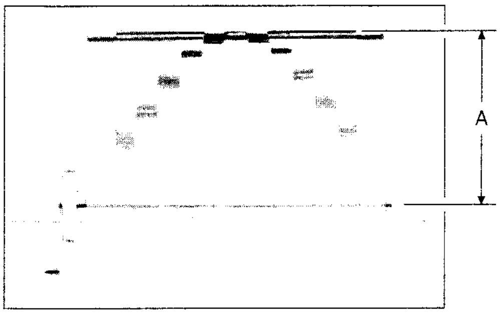

RV16 (B PED)
RV14 (R PED)
RV20 (R H SHAD)
RV12 (R GAIN)
RV6 (R BLACK TRACKING)
RV7 (G BLACK TRACKING)
E1
TP12
RV15 (G PED)
RV22 (B H SHAD)
RV19 (B V SHAD)
RV8 (B BLACK TRACKING)
TP11
TP13
RV21 (G H SHAD)
RV17 (R V SHAD)
RV11 (B WHITE CLIP)
RV13 (B GAIN)
RV5 (B LEV)
RV18 (G V SHAD)
TP5
RV10 (R WHITE CLIP)
RV9 (MATER WHITE CLIP)
RV3 (R LEV)
TP3
TP9
TP14
TP7
RV23 (Vcc ADJ)
TP15
RV4 (G LEV)
TP16
CN3
TP4
TP8
RV24 (RV LIMIT)

PR-167 BOARD (COMPONENT SIDE)

3-5-10. White Clip Adjustment

Object: Grayscale chart
Equipment: Waveform monitor
Preparation: Set the WB selector on the side of the camera to PRE.
Set the GAIN switch on the side of the camera to 18 dB.
To be extended: PR-167 board
Adjustment:

1. Adjustment the zoom control so that the grayscale chart frame touches the underscanned picture frame on the monitor.
2. Set the iris control to OPEN.
3. Adjust ⊘ RV10 and ⊘ RV11/PR-167 board several times so that the carrier leakage of the white peak level is minimized.
4. Adjust ⊘ RV9/PR-167 board so that the white peak level "A" is 800±15 mV.



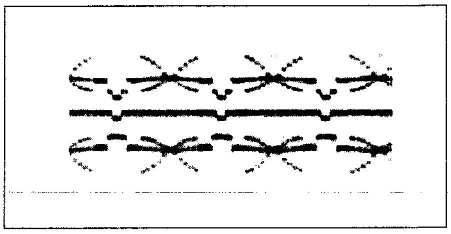
5. Adjustment repeat step3
6. Turn the control on ⊘ RV24/PR-167 board to the left extreme position and then turn clockwise until the same level that is obtained in 4 is reached.
7. After the adjustment, perform 3-4-5 COMPONENT Y Level Adjustment step2 and late.

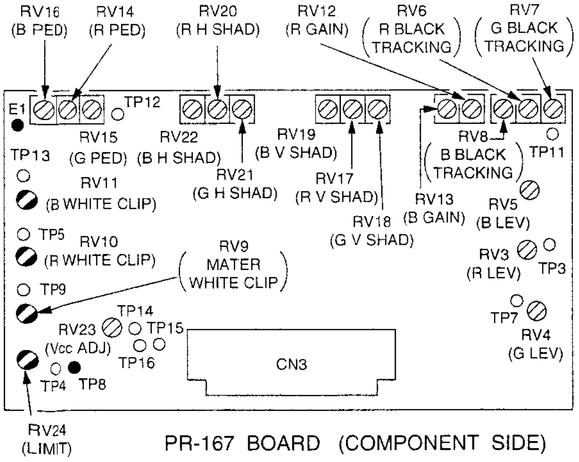
3-6. IMAGE ENHANCER SYSTEM (IE-29 board)

3-6-1. 1H GAIN Adjustment

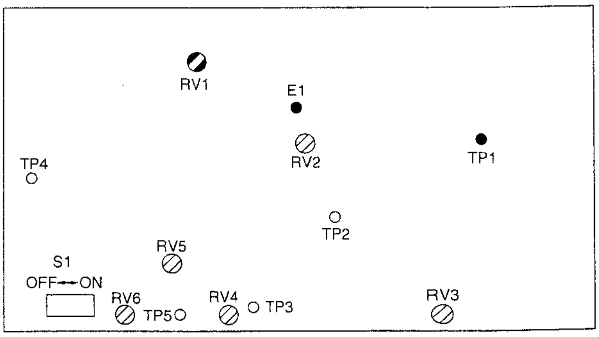
Object: Grayscale chart
Equipment: Oscilloscope
Preparation: Set the WB selector on the side of the camera to PRE.
To be extended: R-167 board, IE-29 board
Test point: Ch1:TP1 (GND:E1)/IE-29 board
Ch2:TP8 (GND:E1)/PR-167 board
Trigger: HD (A19)/extension board
Adjustment:

1. Adjust the zoom control so that the grayscale chart frame touches the underscanned picture frame on the monitor.
2. Check the waveform composed by inverting the Ch2 and adding it to the Ch1 on the oscilloscope.
3. Adjust ⊘ RV1/IE-29 board so that waveform checked in Step 2 to be flat.





PR-167 BOARD (COMPONENT SIDE)

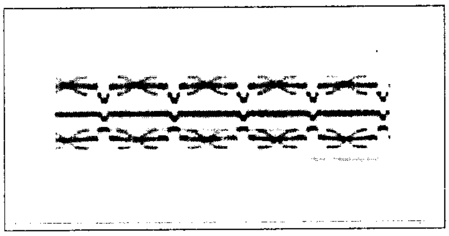


IE-29 BOARD (COMPONENT SIDE)

3-6-2. 2H GAIN Adjustment

Object: Grayscale chart
Equipment: Oscilloscope
Preparation: Set the WB selector on the side of the camera to PRE.
To be extended: PR-167 board, IE-29 board
Test point: Ch1:TP2 (GND:E1)/IE-29 board
Ch2:TP8 (GND:E1)/PR-167 board
Trigger: HD (A19)/extension board
Adjustment point: ⊘ RV2/IE-29 board
Adjustment:

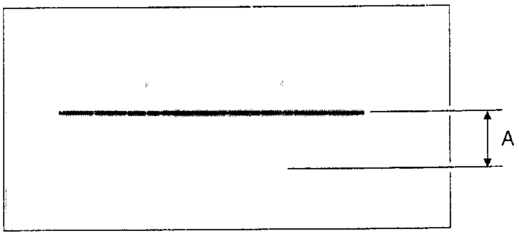
1. Adjust the zoom control so that the grayscale chart frame touches the underscanned picture frame on the monitor.
2. Check the waveform composed by inverting the Ch2 and adding it to the Ch1 on the oscilloscope.
3. Adjust ⊘ RV2/IE-29 board so that waveform checked in Step 2 to be flat.



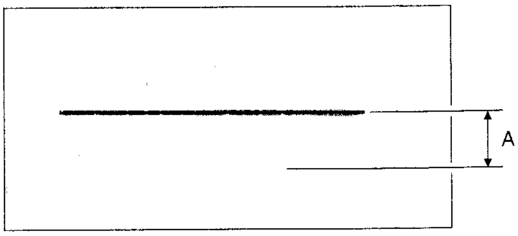
3-6-3. Crispening Adjustment

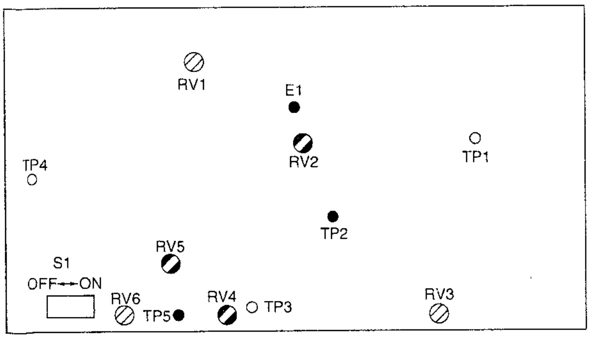
Object: Oscilloscope
Preparation: Lens → CLOSE
⊘RV5/IE-29 board fully clockwise↻.
Set the GAIN switch on the side of the camera to O dB.
To be extended: PR-167 board, IE-29 board
Test point: TP5/IE-29 board
Trigger: HD (A19)/extension board
Adjustment point: ⊘RV4/IE-29 board
⊘RV5/IE-29 board
Adjustment:

1. Adjust ⊘RV4/IE-29 board so that "A" is 270 mV.

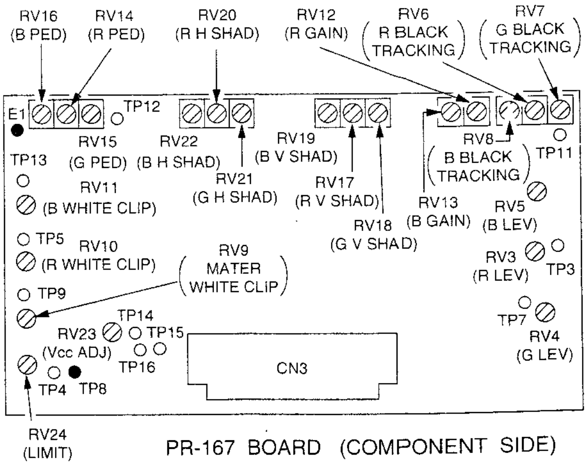


2. Adjust ⊘RV5/IE-29 board gradually to the left so that "A" is 200 mV.




RV1
E1
RV2
TP1
TP4
TP2
RV5
S1
OFF↔ON
RV6
TP5
RV4
TP3
RV3

IE-29 BOARD (COMPONENT SIDE)

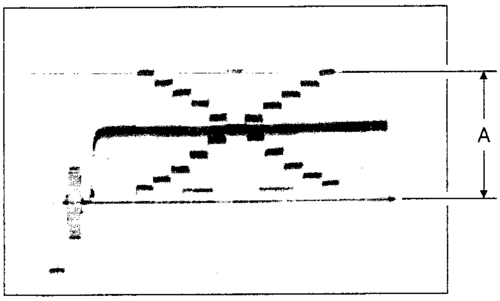

RV16 (B PED)
RV14 (R PED)
RV20 (R H SHAD)
RV12 (R GAIN)
RV6 (R BLACK TRACKING)
RV7 (G BLACK TRACKING)
E1
TP12
RV15 (G PED)
RV22 (B H SHAD)
RV19 (B V SHAD)
RV8
TP11
TP13
RV11 (B WHITE CLIP)
RV21 (G H SHAD)
RV17 (R V SHAD)
(B BLACK TRACKING)
RV13
RV5
RV18 (B GAIN)
(B LEV)
TP5
RV10 (R WHITE CLIP)
RV9 (MATER WHITE CLIP)
(G V SHAD)
RV3 (R LEV)
TP3
TP9
TP14
TP7
RV4 (G LEV)
RV23 (Vcc ADJ)
TP15
TP16
CN3
TP4
TP8
RV24 (LIMIT)

PR-167 BOARD (COMPONENT SIDE)

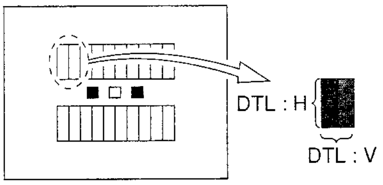
3-6-4. H.V.RATIO Adjustment

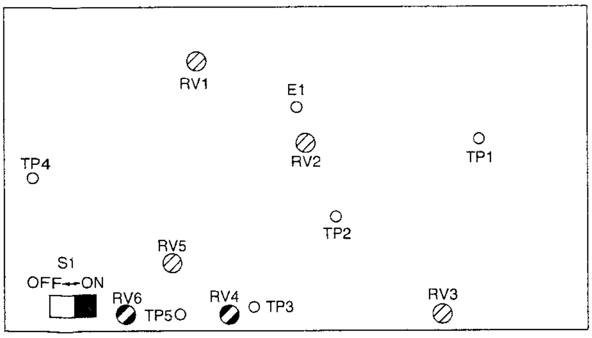
Object: Grayscale chart
Equipment: B/W monitor screen
Preparation: Set the S1 (DTL) switch on the IE-29 board to ON. Set the WB selector on the side of the camera to PRE.
To be extended: PR-167 board
Adjustment point: ⊘RV4/IE-29 board
Adjustment:

1. Adjust the zoom control so that the grayscale chart frame touches the underscanned picture frame on the monitor.
2. Adjust the iris control so that the white level "A" of the grayscale chart is 560±15 mV.



3. Watching the indicated point on the B/W monitor (See the figure below), adjust ⊘RV4/IE-29 board so that the DTL H and V are balanced.



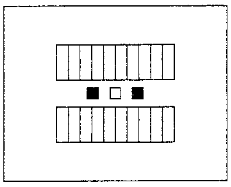


IE-29 BOARD (COMPONENT SIDE)

3-6-5. Detail Level Adjustment

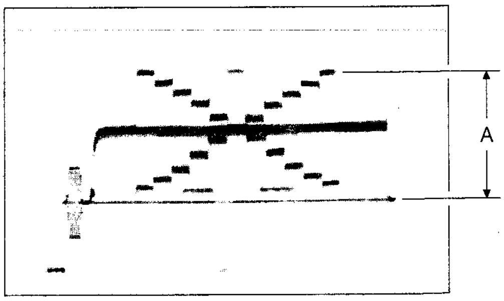
Object: Grayscale chart
Equipment: Waveform monitor
Preparation: Set the WB selector on the side of camera to PRE. Set the S1 (DTL) switch on the IE-29 board to ON.
To be extended: PR-167 board, IE-29 board
Adjustment point: ⊘RV6/IE-19 board
Adjustment:

1. Adjust the zoom control so that the grayscale chart frame touches the underscanned picture frame on the monitor.



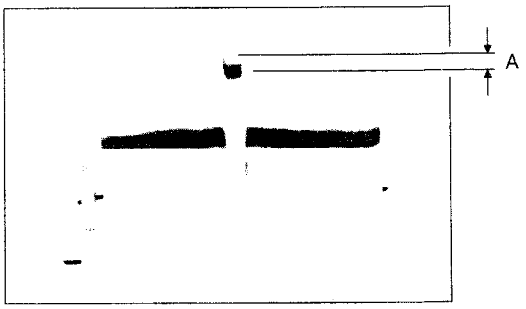
(Monitor Screen)

2. Adjust the iris control so that the white level "A" of the grayscale chart is 560±15 mV.



3. Adjust "LINE SELECTOR (15 LINE)" of the waveform monitor so that a selected line is overlapped with white level of the grayscale chart on the waveform monitor. Adjust ⊘RV6/IE-29 board so that the DTL level "A" is 55±20 mV.

Note: If the two DTL levels "A" are not balanced, take the bigger one.

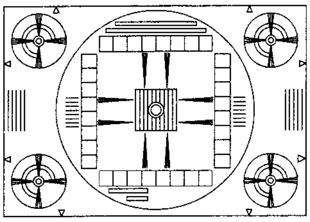


4. After the adjustment, set the DTL switch (S1)/IE-29 to OFF.

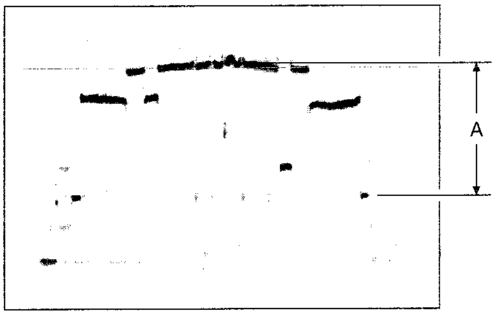
3-6-6. Resolution Adjustment (IE-29 board, DR-107 board)

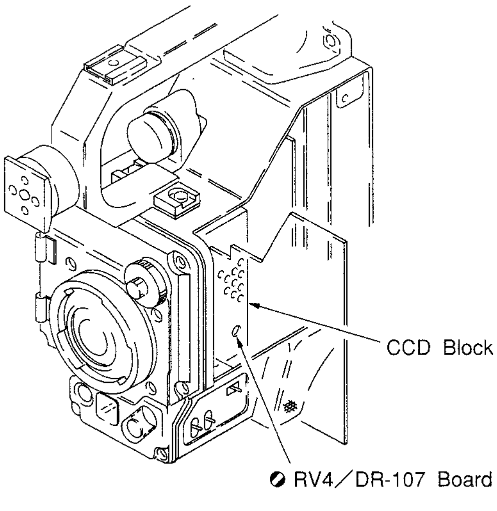
Object: Resolution chart
Equipment: Waveform monitor, W/B monitor
Preparation: Set the WB selector on the side of the camera to PRE.
To be extended: PR-167 board, IE-29 board
Adjustment:

1. Adjust the zoom control so that the resolution chart frame touches the underscanned picture frame on the monitor.

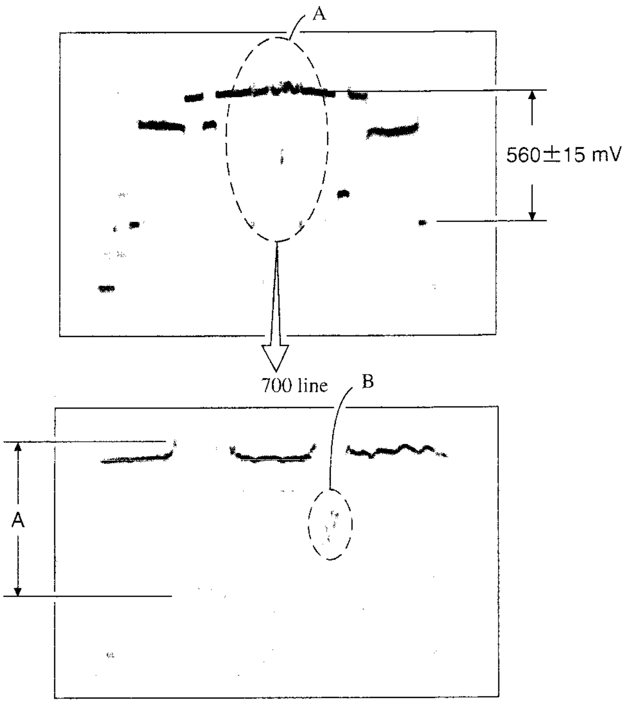


2. Adjust the iris control so that the white level "A" of the resolution chart is 560 mV.





3. Adjust "LINE SELECTOR" of waveform monitor so that a selected line is overlapped with 700-line of the resolution chart on the waveform monitor.
4. Adjust the focus control so that the amplitude portion "A" of the video signal is maximized.
5. Repeatedly adjust ⊘ RV4 on the DR-107 board and ⊘ RV3 on the IE-29 board alternately so that the number of lower peaks (black level) of the amplitude at "portion A" in the resolution chart is 4.



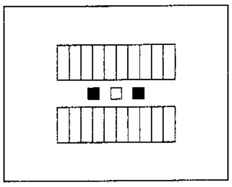
Note: The CCD device has some hundreds of picture elements in the horizontal line. When the vertical black stripes corresponding to 700 TV lines are optically positioned between each element in the CCD, the black stripes do not appear on the monitor. It seems that the resolution has been reduced. In this case, pan the camera slightly so that the best resolution is obtained.

3-7. AUTO SYSTEM (AT-63 board)

3-7-1. LOW LIGHT Adjustment

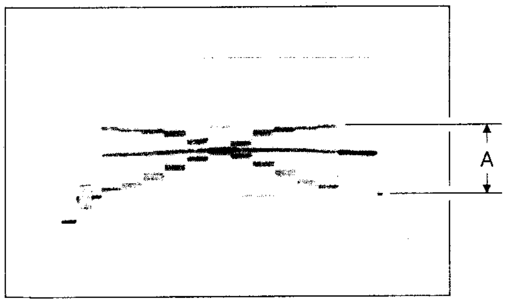
Object: Grayscale chart
Equipment: Waveform monitor
Preparation: Set the WB selector on the side of the camera to PRE.
Adjustment point: ⊘RV1/AT-63 board
Adjustment:

1. Adjust the zoom control so that the grayscale chart frame touches the underscanned picture frame on the monitor.



(Monitor Screen)

2. Adjust the iris control so that the white level "A" of the grayscale chart is 300±15 mV.

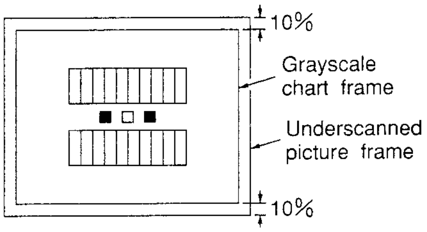


3. Adjust ⊘RV1/AT-63 board counterclockwise form the rightmost position until the point where the "LOW LIGHT" indication and the "LOW LIGHT" lamp light up on the viewfinder screen.
4. Open the iris control gradually and confirm that the white level of the video signal is 330 mV when the "LOW LIGHT" indication disappears. If the specification is not met, repeat step 3.

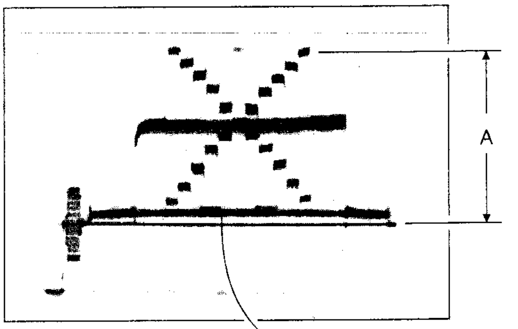
3-7-2. ABL Adjustment

Object: Grayscale chart
Equipment: Waveform monitor
Preparation: Set the WB selector on the side of the camera to PRE.
Adjustment point: ⊘RV6/AT-63 board
Adjustment:

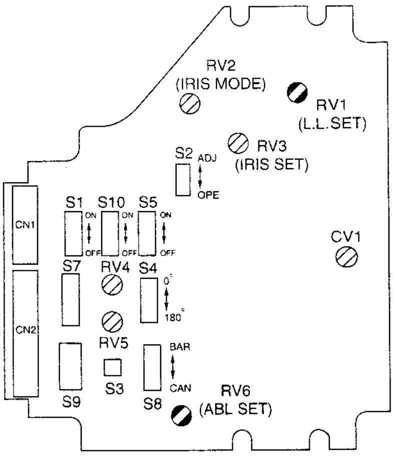
1. Adjust the zoom control so that the grayscale chart frame is underscanned 10% from the underscanned frame on the monitor.


10%
Grayscale chart frame
Underscanned picture frame
10%

2. Adjust the iris control so that the white level "A" of the grayscale chart is 700±15 mV.
3. Adjust ⊘RV6/AT-63 board so that the black level of the grayscale chart does not change when changing over the ABL switch to ON or OFF.



The black level must not change.


RV2
(IRIS MODE)
RV1
(L.L.SET)
S2
ADJ
OPE
RV3
(IRIS SET)
S1
S10
S5
ON
OFF
CN1
CV1
S7
RV4
S4
0°
180°
CN2
RV5
BAR
CAN
S3
S9
S8
RV6
(ABL SET)

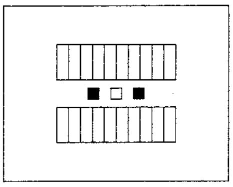
AT-63 BOARD (COMPONENT SIDE)

3-7-3. Auto Iris Adjustment

Object: Grayscale chart
Equipment: Waveform monitor
Preparation: Set the WB selector on the side of the camera to PRE.
Set the iris control to AUTO.
⊘RV2 (IRIS MODE)/AT-63 board fully clockwise ↻.

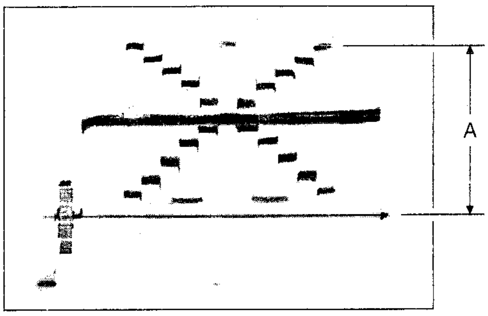
Adjustment:

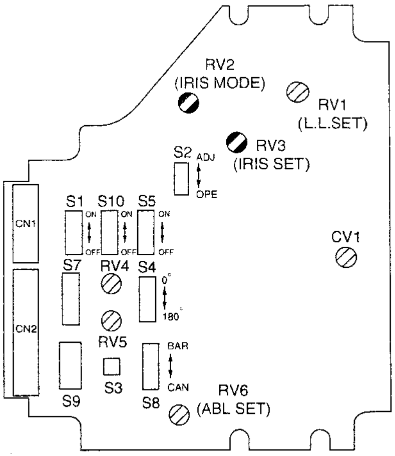
1. Adjust the zoom control so that the grayscale chart frame touches the underscanned picture frame on the monitor.



(Monitor Screen)

2. Adjust ⊘ RV3 (IRIS SET)/AT-63 board so that the white peak level "A" of the grayscale chart is 600±10 mV.
3. Adjust ⊘RV2 (IRIS MODE)/AT-63 board so that the white peak level "A" of the grayscale chart is 700±10 mV.




RV2
(IRIS MODE)
RV1
(L.L.SET)
S2
ADJ
OPE
RV3
(IRIS SET)
CN1
S1
S10
S5
ON
OFF
CV1
S7
RV4
S4
0°
180°
CN2
RV5
BAR
CAN
S3
S9
S8
RV6
(ABL SET)

AT-63 BOARD (COMPONENT SIDE)

DXK-327/327P

General

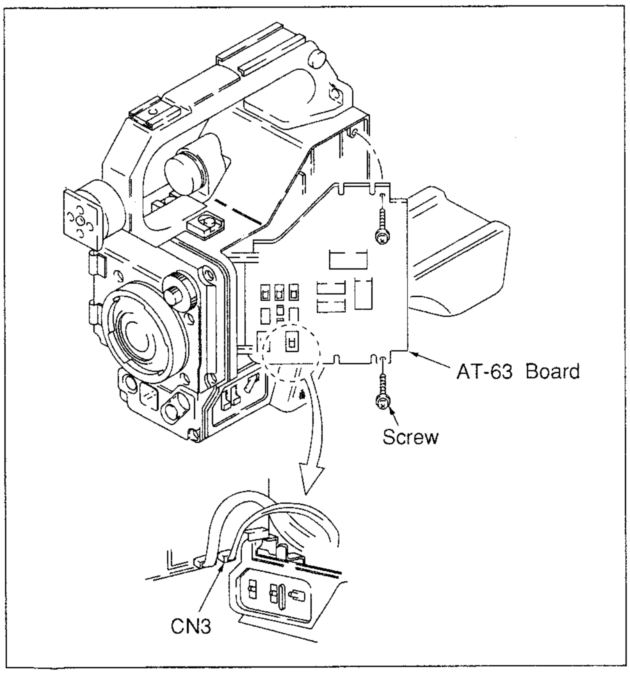
The DXK-327/327P is a kit for modification of the DXC-327/327P color video camera and is composed of an EN-103 board, SG-171 board, MB-413 board, a shoulder pad, and a connector panel for CA-537/537P. Incorporation of DXK-327/327P allows the output of component signals from the DXC-327/327P and enables connection with the BETA-CAM SP2000PRO series video cassette recorder PVV-1/1P.
It also enables connection with the camera adaptors CA-537/537P and CA-511.

For the circuit diagrams of boards and block diagrams, and the table of repair parts, please refer to the DXC-327A/327AP Service Manual.

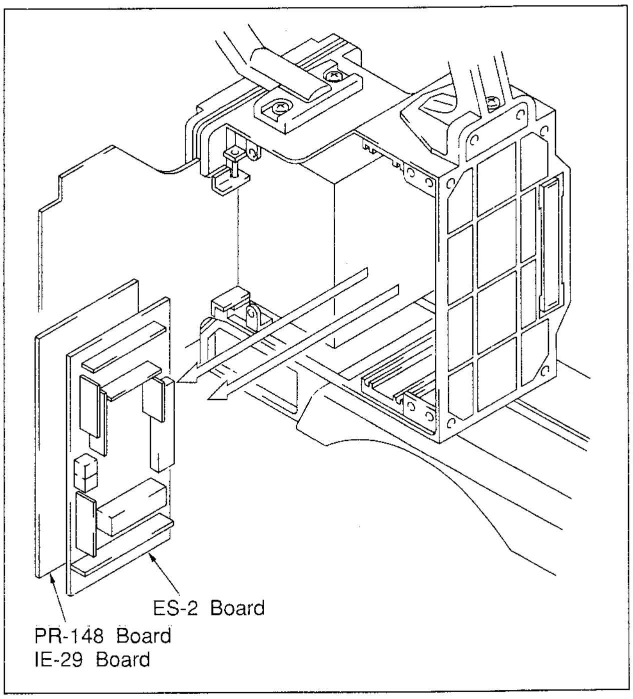
Incorporation into DXC-327/DXC-327P

1. Remove the covers on both sides by referring to the "CABINET REMOVAL" section of DXC-327A/327AP Service Manual.

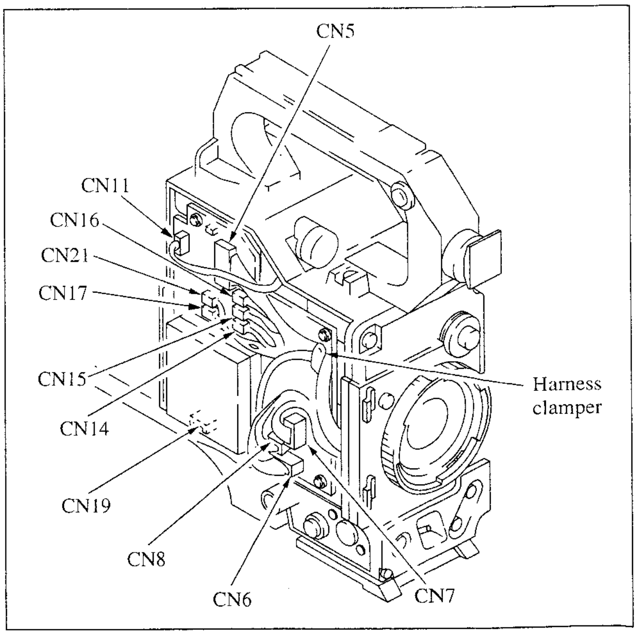
2. Remove the two screws, open the AT-63 board, and then disconnect the CN3 connector.


AT-63 Board
Screw
CN3

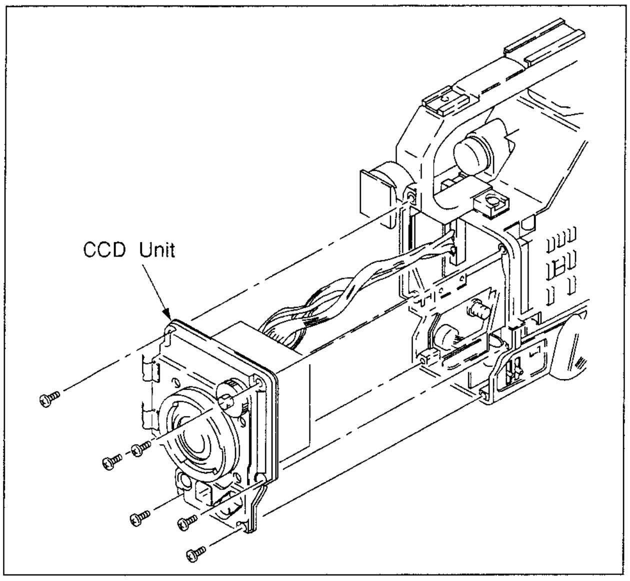
3. Pull out the PR-148 board, IE-29 board, and the ES-2 board.


ES-2 Board
PR-148 Board
IE-29 Board

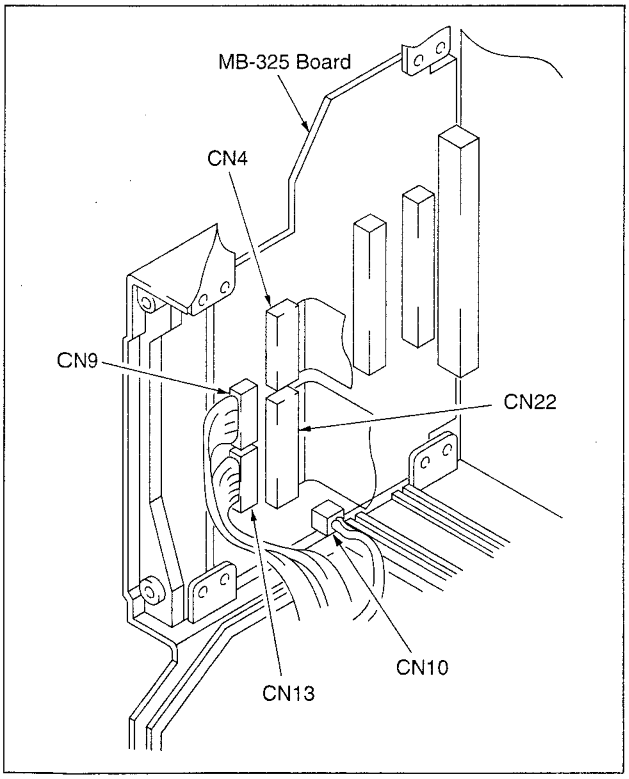
4. Disconnect the eleven connectors: CN5, 6, 7, 8, 11, 14, 15, 16, 17, 19, and 21, which are located outside the MB-325 board. Remove the harness from the harness clamper.


CN5
CN11
CN16
CN21
CN17
CN15
CN14
CN19
CN8
CN6
CN7
Harness clamper

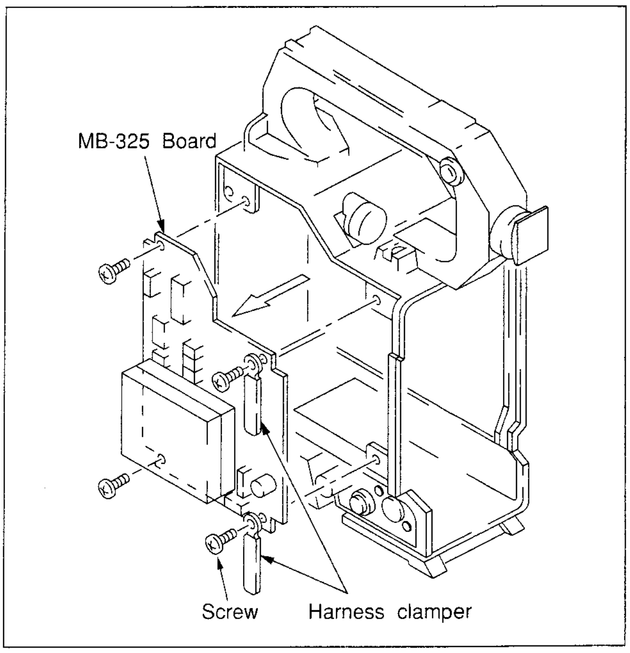
5. Unscrew the six screws on the front panel and pull out the entire CCD unit.



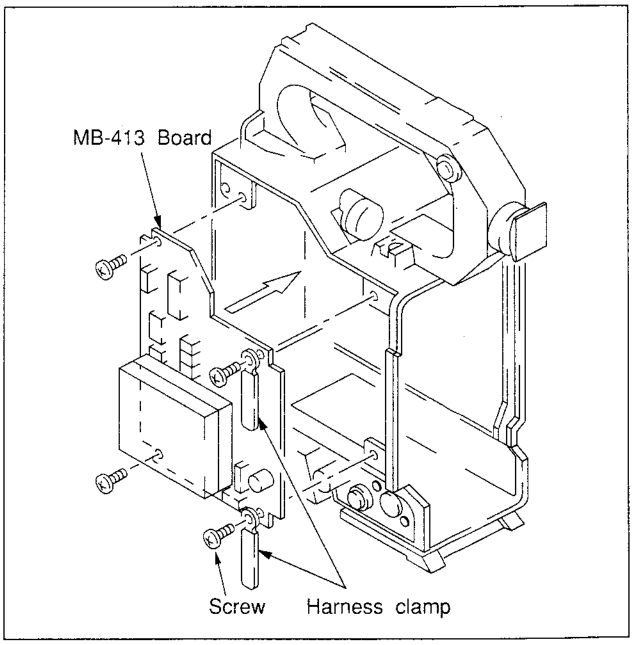
6. Disconnect the five connectors: CN4, 9, 10, 13, and 22, which are located inside the MB-325 board.


MB-325 Board
CN4
CN9
CN22
CN13
CN10

7. Unscrew the four screws and remove the MB-325 board.


MB-325 Board
Screw
Harness clamper

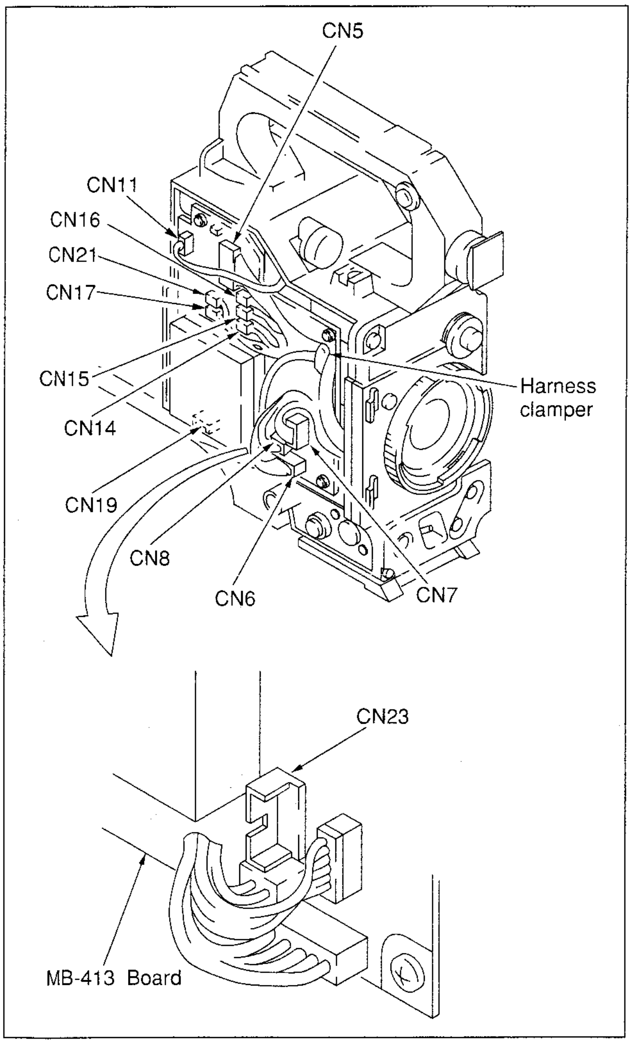
8. Hold the MB-413 board in place using the four screws while simultaneously tightening the harness clamper.


MB-413 Board
Screw
Harness clamp

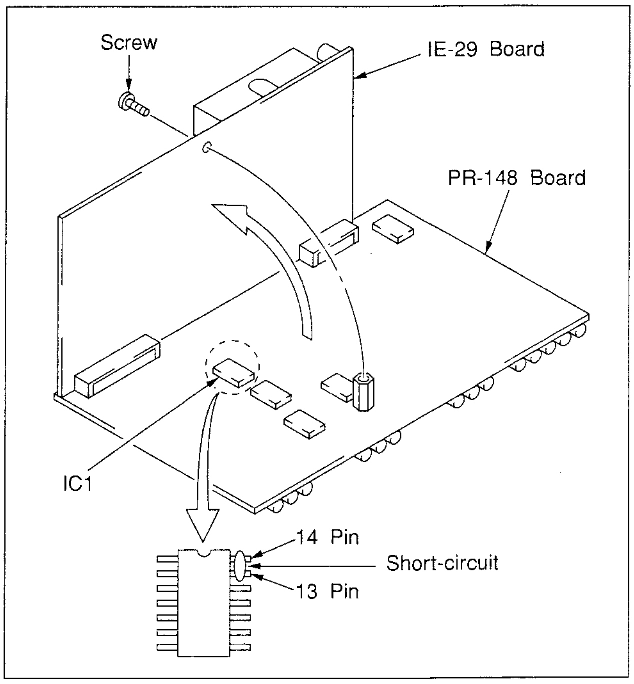
9. Connect the five connectors (CN4, 9, 10, 13, and 22) of the MB-413 board by performing steps 5 and 6 in reverse order and then mount the CCD unit on the main body.

10. Connect the connectors as they were originally and then hold the harness firmly with the harness clamper.

Note: There is no connector to the CN23 on the replaced MB-413 board.

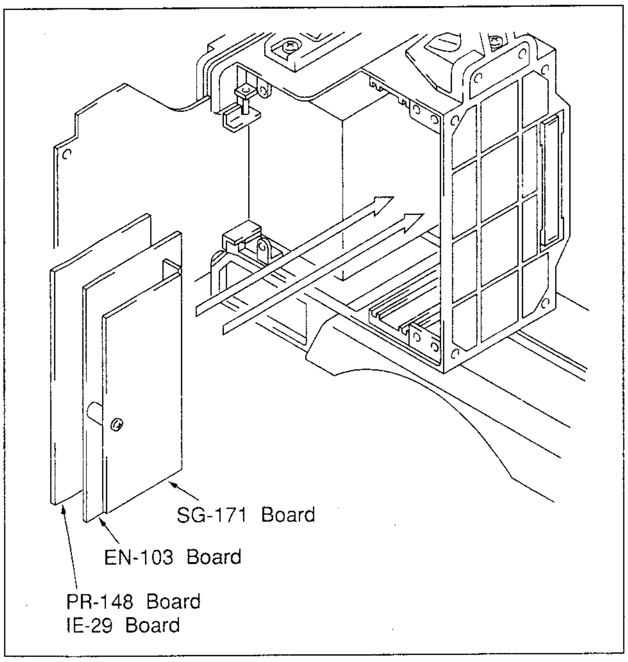

CN5
CN11
CN16
CN21
CN17
CN15
CN14
CN19
CN8
CN6
CN7
Harness clamper
CN23
MB-413 Board

11. Unscrew the screw and then open the IE-29 board in the direction of the arrow.
Short-circuit pins 13 and 14 of IC1 on the PR-148 board by soldering.

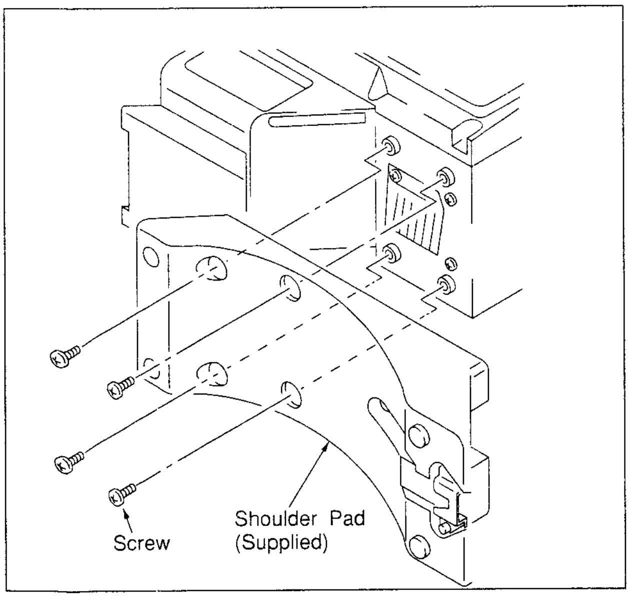

Screw
IE-29 Board
PR-148 Board
IC1
14 Pin
Short-circuit
13 Pin

12. Insert the PR-148 board, IE-29 board, EN-103 board, and SG-171 board.

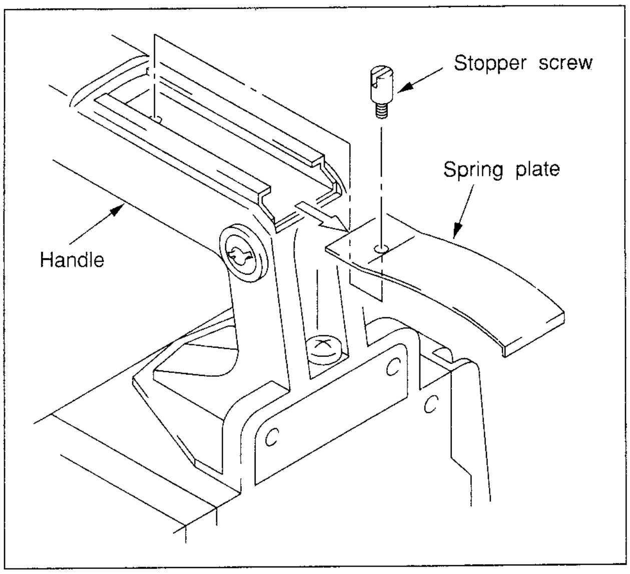
Note: Adjust the EN-103 board and the SG-171 board in advance by referring to the "ALIGNMENT" section of the DXC-327A/327AP Service Manual.
Readjust the PR-148 board by referring to the "ALIGNMENT" section of PR-167 board of DXC-327A/AP Service Manual.


SG-171 Board
EN-103 Board
PR-148 Board
IE-29 Board

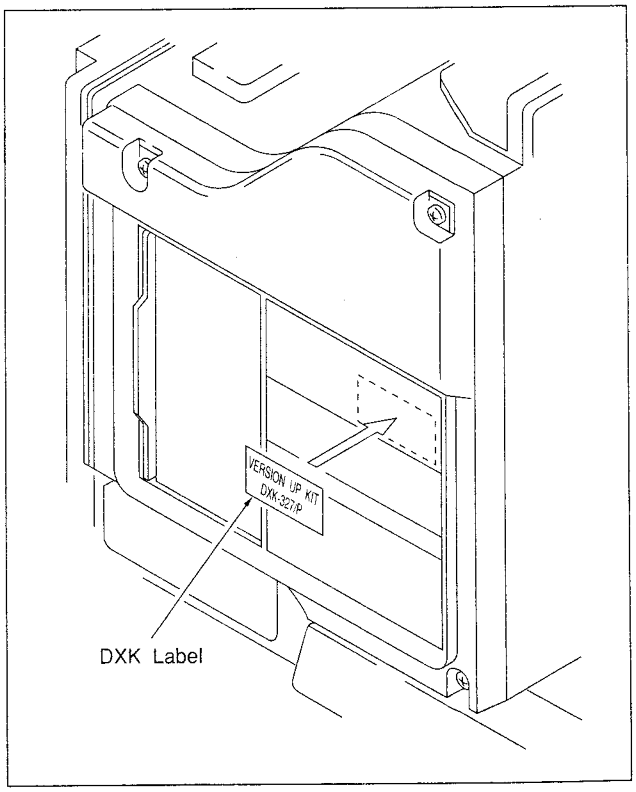
13. Unscrew the four screws, remove the shoulder pad, and then mount the shoulder pad that is supplied with the DXK-327/327P.


Shoulder Pad
(Supplied)
Screw

14. Remove the stopper screw and the spring plate.


Stopper screw
Spring plate
Handle

15. Attach the both side covers and then stick the DXK label on the right side cover.

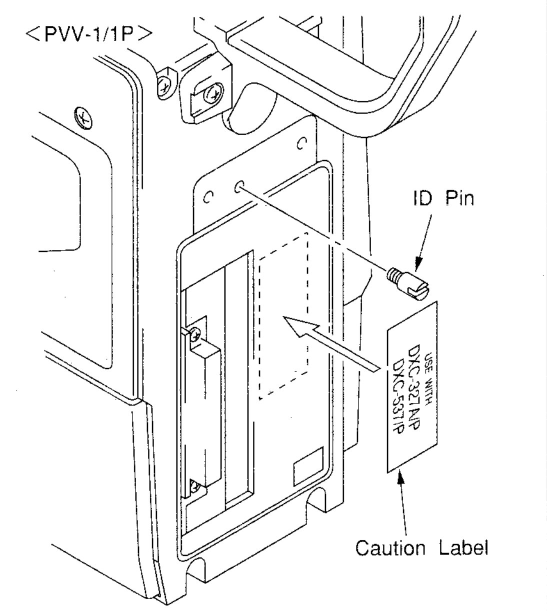

VERSION UP KIT
DXK-327/P
DXK Label

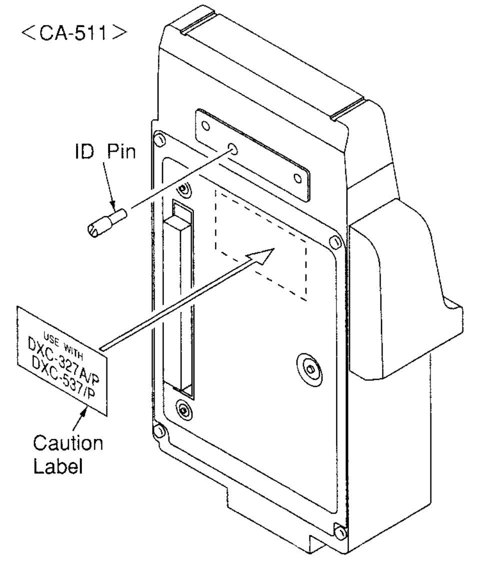
Modification of PVV-1/1P, CA-537/357P, and CA-511

PVV-1/1P, CA-537/537P, and CA-511 are provided with ID pins to prevent improper connection with cameras which do not have component outputs. If a modified DXC-327/327P with the DXK-327/327P is connected with one of the models mentioned above, this ID pin must be removed. PVV-1/1P, CA-537/537P, and CA-511 all have the ID pin removed and they can be connected with a camera which does not have component output, but they do not function properly.

Modification of PVV-1/1P and CA-511

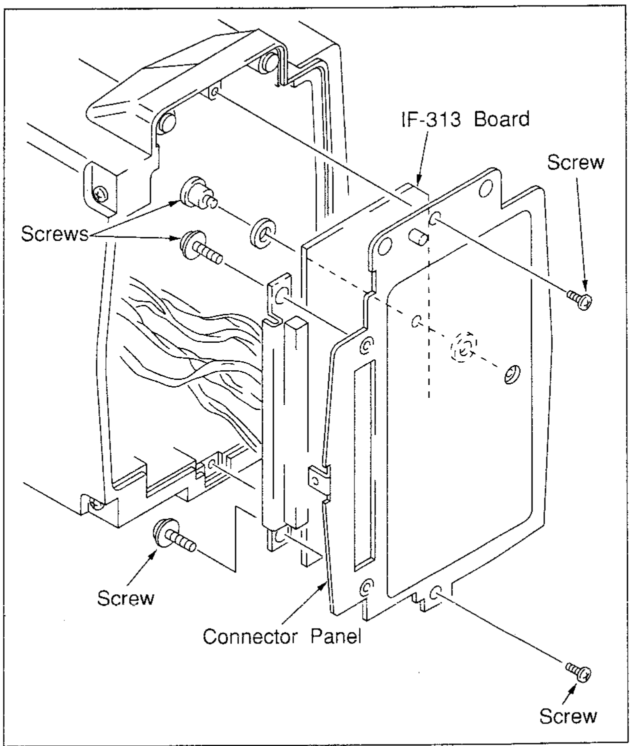
Remove the ID pin by using a screwdriver and then stick a caution label.


<PVV-1/1P>
ID Pin
USE WITH DXC-327A/P DXC-537/P
Caution Label

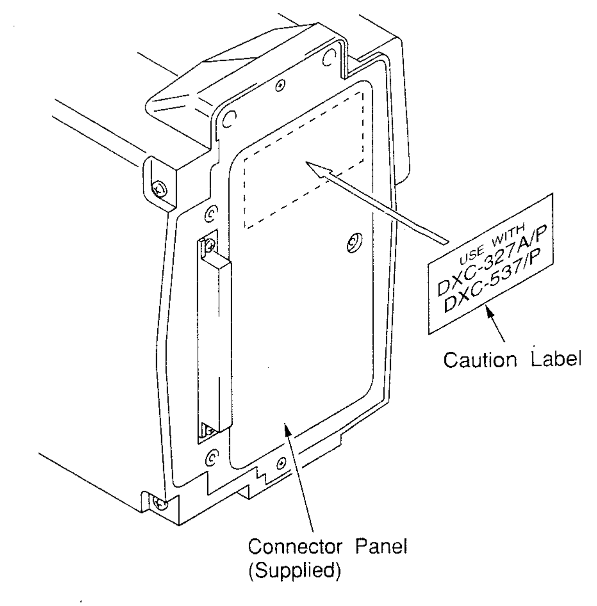

<CA-511>
ID Pin
USE WITH DXC-327A/P DXC-537/P
Caution Label

Modification of CA-537/537P

1. Unscrew the two screws, remove the connector panel, and then unscrew the three screws that hold the IF-313 board.


IF-313 Board
Screw
Screws
Screw
Connector Panel
Screw

2. Attach the connector panel that is supplied with DXK-327/327P and then stick a caution label.


USE WITH DXC-327A/P DXC-537/P
Caution Label
Connector Panel (Supplied)

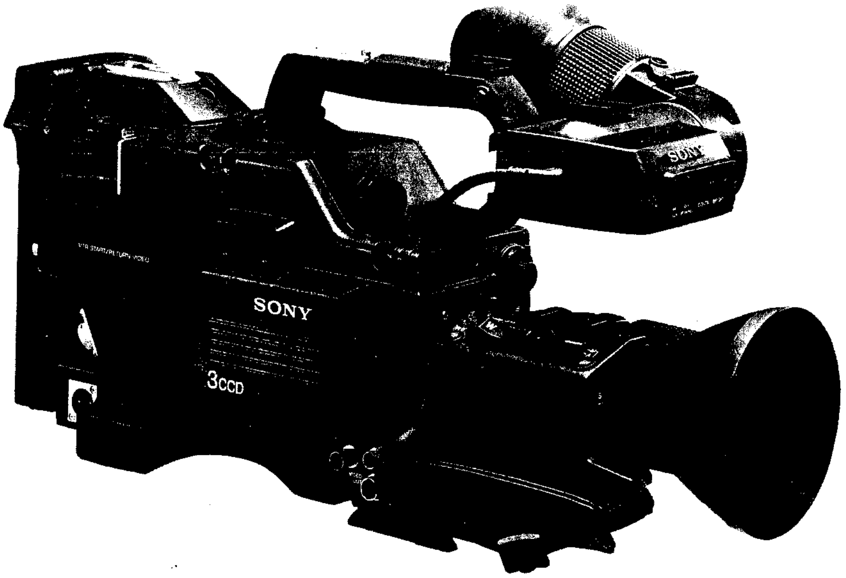
COLOR VIDEO CAMERA
CAMERA ADAPTOR
1.5INCH ELECTRONIC VIEWFINDER
ZOOM LENS

ONY - SP0203

DXC-327
CA-327
DXF-501
VCL-712BX

VOL. 2

BLOCK DIAGRAMS
SEMICONDUCTORS
SCHEMATIC DIAGRAMS
BOARD ILLUSTRATIONS
SPARE PARTS



SONY®

SERVICE MANUAL

SAFETY RELATED COMPONENT WARNING

Components identified by shading and ⚠ marked on the schematic diagrams and parts list are critical to safe operation. Replace these components with SONY parts whose part numbers appear as shown in this manual or in supplements published by SONY.

Warning—This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a computing device pursuant to Subpart J of Part 15 of FCC rules.

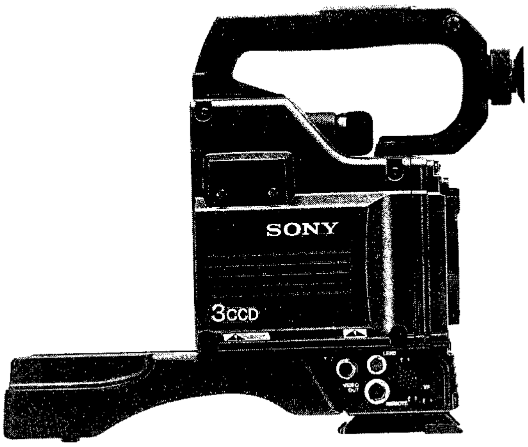
For the customers in Canada

This apparatus complies with the Class A limits for radio noise emissions set out in Radio Interference Regulations.

Pour les utilisateurs au Canada

Cet appareil est conforme aux normes Classe A pour bruits radioélectriques, spécifiés dans le Règlement sur le brouillage radioélectrique.

COLOR VIDEO CAMERA



SPECIFICATIONS

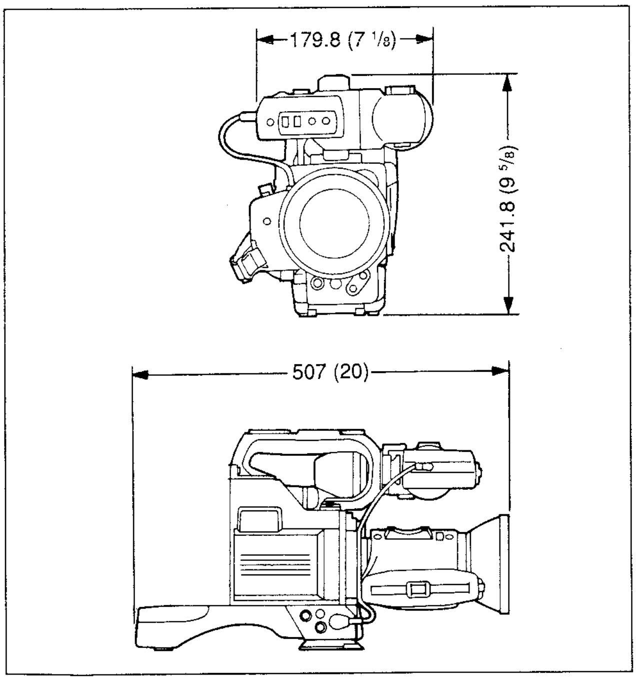
Camera head (DXC-327/327P)

Image device	Interline-transfer CCD, 3-chip
Picture elements	768 × 494 (h/v) (NTSC) 752 × 582 (h/v) (PAL)
Sensing area	6.4 mm × 4.8 mm (equivalent to a 1/2-inch pickup tube)
Built-in filters	1: 3200 K 2: 5600 K + 1/8 ND 3: 5600 K
Lens mount	Bayonet mount
Signal system	EIA standards, NTSC color system (for DXC-327) CCIR standards, PAL color system (for DXC-327P)
Scanning system	525 lines, 2:1 interlace, 30 frames/sec. (NTSC) 625 lines, 2:1 interlace, 25 frames/sec. (PAL)
Scanning frequency	Horizontal: 15.734 kHz (NTSC) 15.625 kHz (PAL) Vertical: 59.94 Hz (NTSC) 50.00 Hz (PAL)
Sync system	Internal External with the BS or VBS signal supplied to the GEN LOCK IN connector (When the CA-327/327P, CA-325/325P, CA-325A/325AP or CA-325B is used) or the reference signal input to the VTR/CCU/CMA connector from the GEN LOCK IN connector of the CCU-M3/M3P (When the CA-327/327P or CA-325/325 is used)
Horizontal resolution	700 lines (center)
Minimum illumination	20 lux with F1.4, + 18 dB
Sensitivity	2000 lux with F5.0, at 3200 K
Gain selection	0 dB, 9 dB or 18 dB, selectable
Video output	Composite signal: 1.0 Vp-p, sync negative, 75 Ω unbalanced Y/C separate signal: Y: 1.0 Vp-p, sync negative, unbalanced C: burst level 0.286 Vp-p (NTSC) 0.3 Vp-p (PAL) without sync
Signal to noise ratio	60 dB (NTSC) 58 dB (PAL)
Registration	0.05 % for Zone I 0.05 % for Zone II 0.05 % for Zone III

SONY®
SERVICE MANUAL

Inputs/Outputs	VIDEO OUT: BNC-type LENS: 1/2-inch lens connector (7-pin) 2/3-inch lens connector (6-pin) VF: 8-pin REMOTE: 10-pin
Power requirements	12 V DC
Power consumption	8 W
Operating temperature	–5°C to +45°C (23°F to 113°F)
Storage temperature	–20°C to +60°C (–4°F to 140°F)
Weight	2 kg (4 lb 7 oz)
Dimensions	See the illustrations below. Unit: mm (inches)

Dimensions



Carrying case (LC-420)

Weight	About 7.7 kg (15 lb 7 oz)
Dimensions	About 790 × 440 × 340 mm (w/h/d) (31 1/8 × 17 3/8 × 13 1/2 inches)

Accessories supplied

CCQ-2BRS camera cable (with Q-type 14-pin connectors) (supplied with the DXC-327K/327PK/327L/327PL only) (1)

VCL-712BX zoom lens (supplied with the DXC-327K/327PK only) (1)

DXF-327/327CE electronic viewfinder (supplied with the DXC-327K/327PK/327L/327PL only) (1)

LC-420 carrying case (supplied with the DXC-327K/327PK/327L/327PL only) (1)

VCT-12 tripod attachment (supplied with the DXC-327K/327PK/327L/327PL only) (1)

Lens cap (1)

Chart for flange focal length adjustment (1)

Design and specifications are subject to change without notice.

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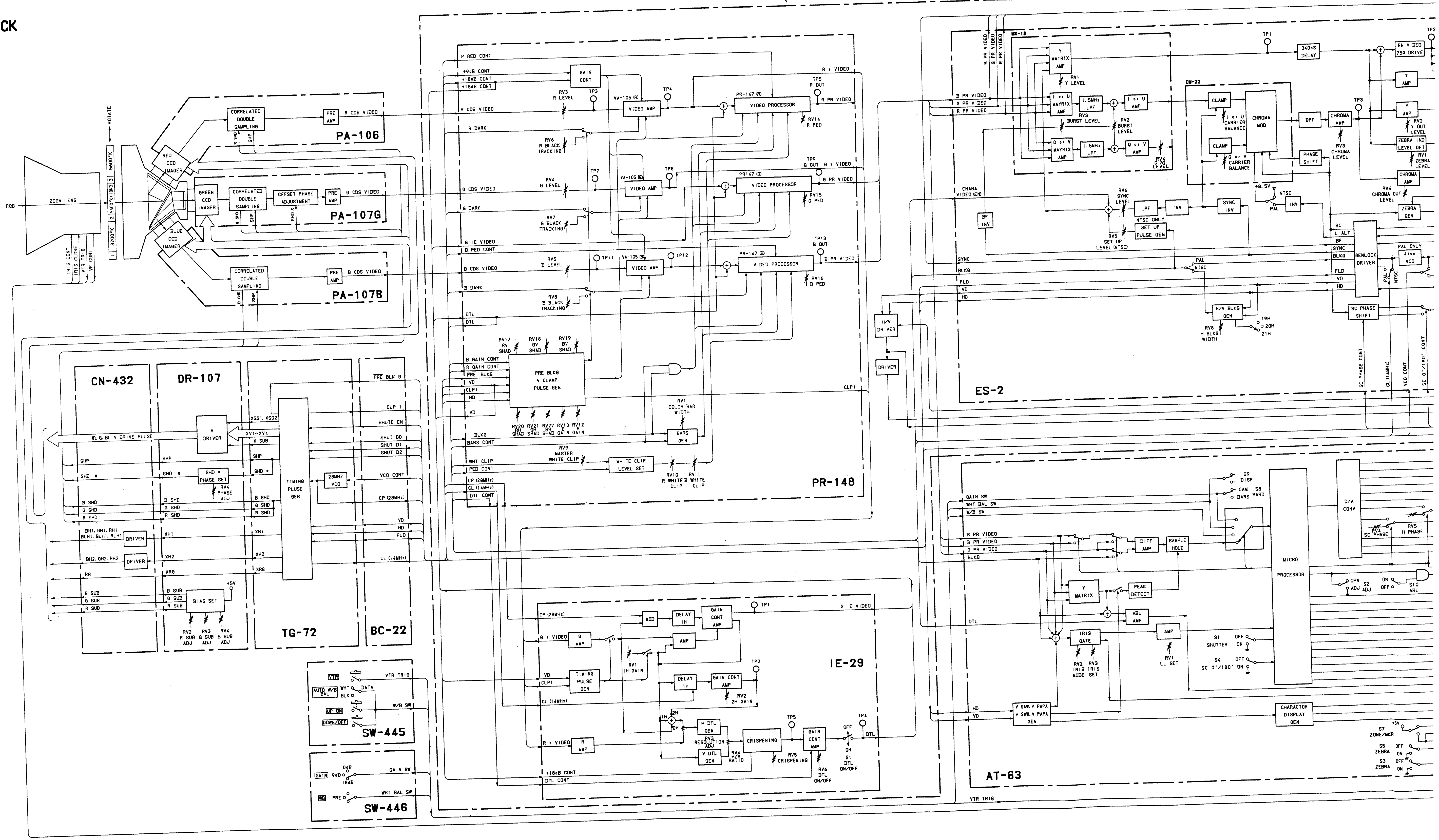
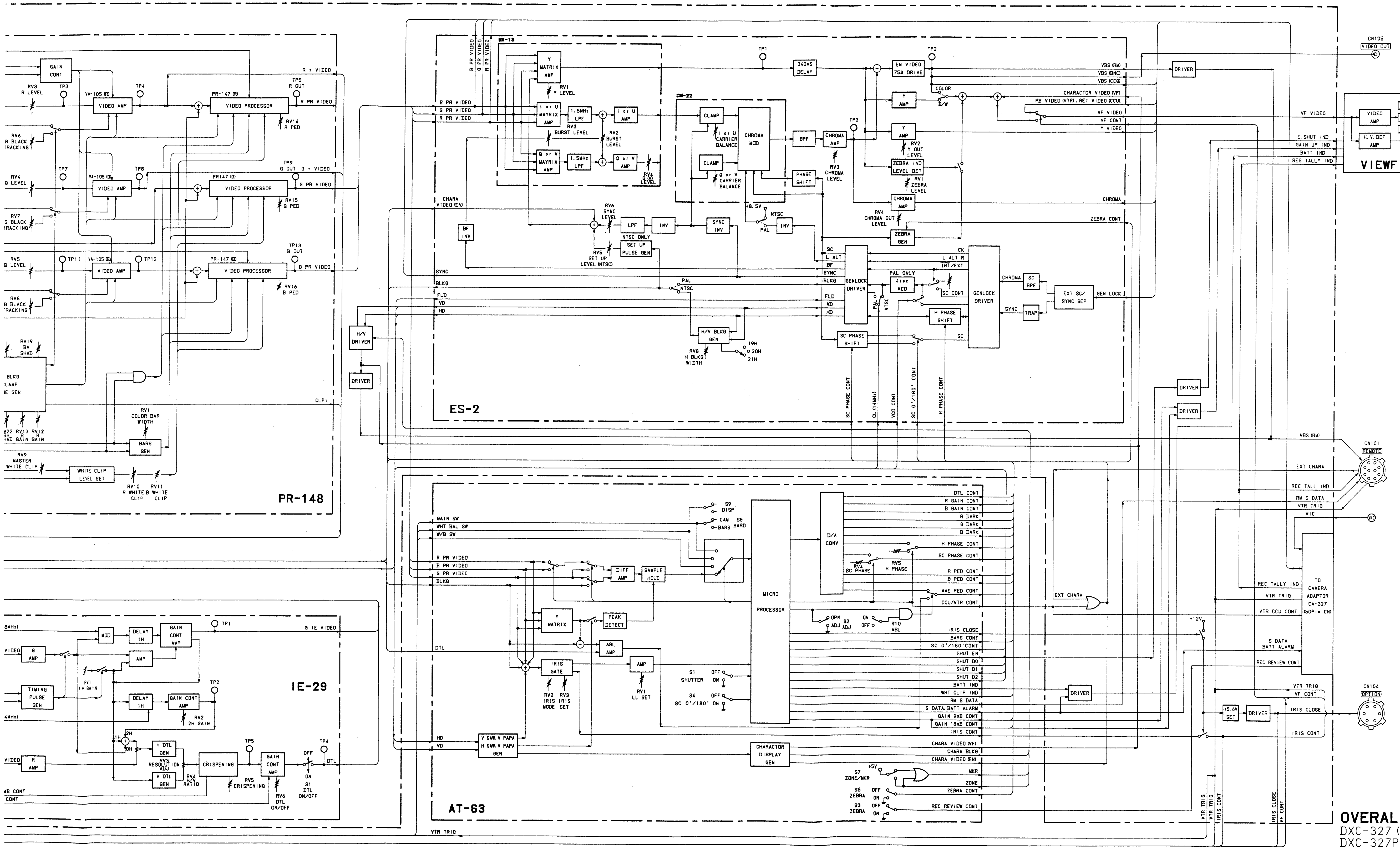
SECTION A
BLOCK DIAGRAMS

OVERALL BLOCK


ROB
ZOOM LENS
IRIS CONT
IRIS CLOSE
VTR TRIG
VF CONT
ROTATE
1 3200°K
2 5600°K+1/8ND
3 5600°K
RED CCD IMAGER
GREEN CCD IMAGER
BLUE CCD IMAGER
CORRELATED DOUBLE SAMPLING
PRE AMP
R CDS VIDEO
G CDS VIDEO
B CDS VIDEO
OFFSET PHASE ADJUSTMENT
PA-106
PA-107G
PA-107B
CN-432
DR-107
TG-72
BC-22
V DRIVER
(R, G, B) V DRIVE PULSE
SHD ✻ PHASE SET
RV4 PHASE ADJ
DRIVER
BIAS SET
RV2 R SUB ADJ
RV3 G SUB ADJ
RV4 B SUB ADJ
TIMING PLUSE GEN
28MHZ VCO
XSG1, XSG2
XV1~XV4
X SUB
SHP
SHD ✻
B SHD
G SHD
R SHD
BH1, GH1, RH1
BLH1, GLH1, RLH1
BH2, GH2, RH2
XH1
XH2
XRG
RG
B SUB
G SUB
R SUB
+5V
PRE BLK G
CLP 1
SHUTE EN
SHUT D0
SHUT D1
SHUT D2
VCO CONT
CP (28MHz)
VD
HD
FLD
CL (14MHz)
SW-445
VTR
AUTO W/B BAL
WHT
BLK
DATA
UP ON
DOWN/OFF
VTR TRIG
W/B SW
SW-446
GAIN 0dB 9dB 18dB
GAIN SW
WB PRE
WHT BAL SW
PR-148
R RED CONT
+9dB CONT
+18dB CONT
GAIN CONT
RV3 R LEVEL
VA-105
VIDEO AMP
PR-147
VIDEO PROCESSOR
R γ VIDEO
R OUT
R PR VIDEO
RV14 R PED
R DARK
RV6 R BLACK TRACKING
RV4 G LEVEL
G CDS VIDEO
G DARK
RV7 G BLACK TRACKING
G γ VIDEO
G OUT
G PR VIDEO
RV15 G PED
G IE VIDEO
B PED CONT
RV5 B LEVEL
B DARK
RV8 B BLACK TRACKING
B OUT
B PR VIDEO
RV16 B PED
DTL
RV17 RV SHAD
RV18 GV SHAD
RV19 BV SHAD
B GAIN CONT
R GAIN CONT
PRE BLKG
CLP1
PRE BLKG V CLAMP PULSE GEN
RV20 RH SHAD
RV21 GH SHAD
RV22 BH SHAD
RV13 R GAIN
RV12 B GAIN
CLP1
RV1 COLOR BAR WIDTH
BARS GEN
BLKG
BARS CONT
RV9 MASTER WHITE CLIP
WHT CLIP
PED CONT
WHITE CLIP LEVEL SET
RV10 R WHITE CLIP
RV11 B WHITE CLIP
CP (28MHz)
CL (14MHz)
DTL CONT
TP1
TP2
TP3
TP4
TP5
TP7
TP8
TP9
TP11
TP12
TP13
IE-29
MOD
DELAY 1H
GAIN CONT AMP
G IE VIDEO
G AMP
AMP
RV1 1H GAIN
TIMING PULSE GEN
GAIN CONT AMP
RV2 2H GAIN
H DTL GEN
V DTL GEN
RV3 RESOLUTION ADJ
RV4 H/V RATIO
CRISPENING
RV5 CRISPENING
GAIN CONT AMP
RV6 DTL ON/OFF
S1 DTL ON/OFF
R γ VIDEO
R AMP
+18dB CONT
DTL CONT
MX-18
B PR VIDEO
G PR VIDEO
R PR VIDEO
Y MATRIX AMP
RV1 Y LEVEL
I or U MATRIX AMP
Q or V MATRIX AMP
1.5MHz LPF
RV3 BURST LEVEL
RV2 BURST LEVEL
RV4 Q/V LEVEL
CM-22
CLAMP
RV1 I or U CARRIER BALANCE
RV2 Q or V CARRIER BALANCE
CHROMA MOD
BPF
CHROMA AMP
RV3 CHROMA LEVEL
PHASE SHIFT
+8.5V
NTSC
PAL
INV
SYNC INV
CHARA VIDEO (EN)
BF INV
RV6 SYNC LEVEL
LPF
RV5 SET UP LEVEL (NTSC)
NTSC ONLY SET UP PULSE GEN
340nS DELAY
EN VIDEO 75Ω DRIVE
Y AMP
RV2 Y OUT LEVEL
ZEBRA IND LEVEL DET
RV1 ZEBRA LEVEL
CHROMA AMP
RV4 CHROMA OUT LEVEL
ZEBRA GEN
SC
L ALT
BF
SYNC
BLKG
FLD
VD
HD
GENLOCK DRIVER
PAL ONLY 4fsc VCO
H/V DRIVER
DRIVER
H/V BLKG GEN
RV8 H BLKG WIDTH
19H 20H 21H
SC PHASE SHIFT
SC PHASE CONT
CL (14MHz)
VCO CONT
SC 0°/180° CONT
ES-2
AT-63
GAIN SW
WHT BAL SW
W/B SW
R PR VIDEO
B PR VIDEO
G PR VIDEO
BLKG
S9 DISP
CAM
BARS
S8 BARS
DIFF AMP
SAMPLE HOLD
MICRO PROCESSOR
D/A CONV
RV4 SC PHASE
RV5 H PHASE
Y MATRIX
PEAK DETECT
ABL AMP
OPN
S2 ADJ
ON OFF
S10 ABL
DTL
IRIS GATE
RV2 IRIS MODE
RV3 IRIS SET
AMP
RV1 LL SET
S1 SHUTTER OFF ON
S4 SC 0°/180° OFF ON
HD
VD
V SAW, V PARA H SAW, V PARA GEN
CHARACTOR DISPLAY GEN
S7 ZONE/MKR
S5 ZEBRA
S3 ZEBRA
VTR TRIG

DXC-327 (J, UC)
DXC-327P (EK)


PR-148
GAIN CONT
RV3 R LEVEL
TP3
VA-105 (R)
VIDEO AMP
TP4
PR-147 (R)
VIDEO PROCESSOR
R γ VIDEO
TP5 R OUT
R PR VIDEO
RV14 R PED
RV6 R BLACK TRACKING
RV4 G LEVEL
TP7
VA-105 (G)
TP8
PR147 (G)
TP9 G OUT
G γ VIDEO
G PR VIDEO
RV15 G PED
RV7 G BLACK TRACKING
RV5 B LEVEL
TP11
VA-105 (B)
TP12
PR-147 (B)
TP13 B OUT
B PR VIDEO
RV16 B PED
RV8 B BLACK TRACKING
RV19 BV SHAD
BLKG CLAMP GEN
RV22 RV13 RV12 BV SHAD GAIN GAIN
RV1 COLOR BAR WIDTH
BARS GEN
CLP1
RV9 MASTER WHITE CLIP
WHITE CLIP LEVEL SET
RV10 R WHITE CLIP
RV11 B WHITE CLIP
ES-2
MX-18
B PR VIDEO
G PR VIDEO
R PR VIDEO
Y MATRIX AMP
RV1 Y LEVEL
I or U MAYRIX AMP
RV3 BURST LEVEL
1.5MHz LPF
I or U AMP
RV2 BURST LEVEL
Q or V MAYRIX AMP
Q or V AMP
RV4 Q (V) LEVEL
CM-22
CLAMP
I or U CARRIER BALANCE
CHROMA MOD
Q or V CARRIER BALANCE
+8.5V
NTSC PAL
INV
BPF
CHROMA AMP
PHASE SHIFT
RV3 CHROMA LEVEL
TP1
340nS DELAY
TP2
EN VIDEO 75Ω DRIVE
COLOR
B/W
Y AMP
TP3
RV2 Y OUT LEVEL
ZEBRA IND LEVEL DET
RV1 ZEBRA LEVEL
CHROMA AMP
RV4 CHROMA OUT LEVEL
ZEBRA GEN
VBS (RM)
VBS (BNC)
VBS (CCU)
CHARACTOR VIDEO (VF)
PB VIDEO (VTR, RET VIDEO (CCU))
VF VIDEO
VF CONT
Y VIDEO
CHROMA
ZEBRA CONT
CHARA VIDEO (EN)
BF INV
RV6 SYNC LEVEL
LPF
NTSC ONLY SET UP PULSE GEN
RV5 SET UP LEVEL (NTSC)
SYNC INV
SYNC
BLKG
FLD
VD
HD
PAL NTSC
H/V BLKG GEN
RV8 H BLKG WIDTH
19H 20H 21H
SC L ALT BF SYNC BLKG FLD VD HD
GENLOCK DRIVER
PAL ONLY 4fsc VCO
PAL NTSC
CK
L ALT R
INT/EXT
SC CONT
H PHASE SHIFT
SC PHASE SHIFT
SC
GENLOCK DRIVER
CHROMA
SC BPE
SYNC
TRAP
EXT SC/ SYNC SEP
GEN LOCK
SC PHASE CONT
CL (14MHz)
VCO CONT
SC 0°/180° CONT
H PHASE CONT
H/V DRIVER
DRIVER
CN105 VIDEO OUT
VIEWFINDER
VIDEO AMP
H.V.DEF AMP
E.SHUT IND
GAIN UP IND
BATT IND
RES TALLY IND
VBS (RM)
CN101 REMOTE
EXT CHARA
REC TALL IND
RM S DATA
VTR TRIG
MIC
AT-63
GAIN SW
WHT BAL SW
W/B SW
R PR VIDEO
B PR VIDEO
G PR VIDEO
BLKG
S9 DISP
CAM BARS
S8 BARD
DIFF AMP
SAMPLE HOLD
MICRO PROCESSOR
D/A CONV
DTL CONT
R GAIN CONT
B GAIN CONT
R DARK
G DARK
B DARK
H PHASE CONT
SC PHASE CONT
RV4 SC PHASE
RV5 H PHASE
R PED CONT
B PED CONT
MAS PED CONT
CCU/VTR CONT
OPN ADJ S2 ADJ
ON OFF S10 ABL
IRIS CLOSE
BARS CONT
SC 0°/180° CONT
SHUT EN
SHUT D0
SHUT D1
SHUT D2
BATT IND
WHT CLIP IND
RM S DATA
S DATA, BATT ALARM
GAIN 9dB CONT
GAIN 18dB CONT
IRIS CONT
CHARA VIDEO (VF)
CHARA BLKG
CHARA VIDEO (EN)
MKR
ZONE
ZEBRA CONT
REC REVIEW CONT
Y MATRIX
PEAK DETECT
ABL AMP
DTL
IRIS GATE
AMP
RV2 IRIS MODE
RV3 IRIS SET
RV1 LL SET
S1 SHUTTER OFF ON
S4 SC 0°/180° OFF ON
HD
VD
V SAW, V PAPA H SAW, H PAPA GEN
CHARACTOR DISPLAY GEN
S7 ZONE/MKR +5V
S5 ZEBRA OFF ON
S3 ZEBRA OFF ON
EXT CHARA
+12V
TO CAMERA ADAPTOR CA-327 (50P× CN)
REC TALLY IND
VTR TRIG
VTR CCU CONT
S DATA BATT ALARM
REC REVIEW CONT
DRIVER
CN104 OPTION
VTR TRIG
VF CONT
IRIS CLOSE
IRIS CONT
+5.6V SET
DRIVER
IE-29
(8MHz)
VIDEO G AMP
MOD
DELAY 1H
GAIN CONT AMP
TP1
G IE VIDEO
AMP
RV1 1H GAIN
TIMING PULSE GEN
DELAY 1H
GAIN CONT AMP
TP2
RV2 2H GAIN
(4MHz)
2H 1H 0H
H DTL GEN
RV3 RESOLUTION ADJ
V DTL GEN
RV4 H/V RATIO
CRISPENING
RV5 CRISPENING
TP5
GAIN CONT AMP
RV6 DTL ON/OFF
TP4
OFF ON S1 DTL ON/OFF
DTL
VIDEO R AMP
dB CONT
CONT
VTR TRIG

OVERALL BLOCK
DXC-327 (J, UC)
DXC-327P (EK)

CCD BLOCK

1

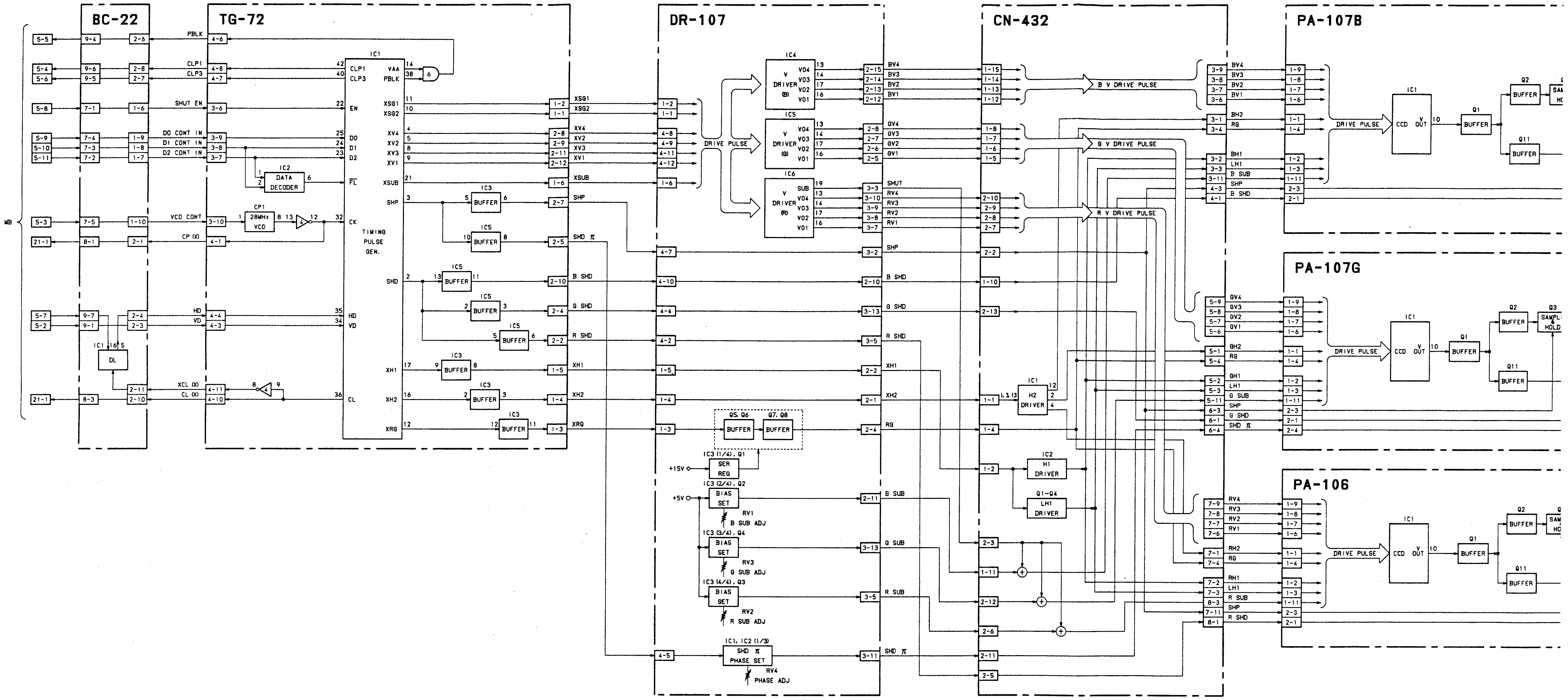
2

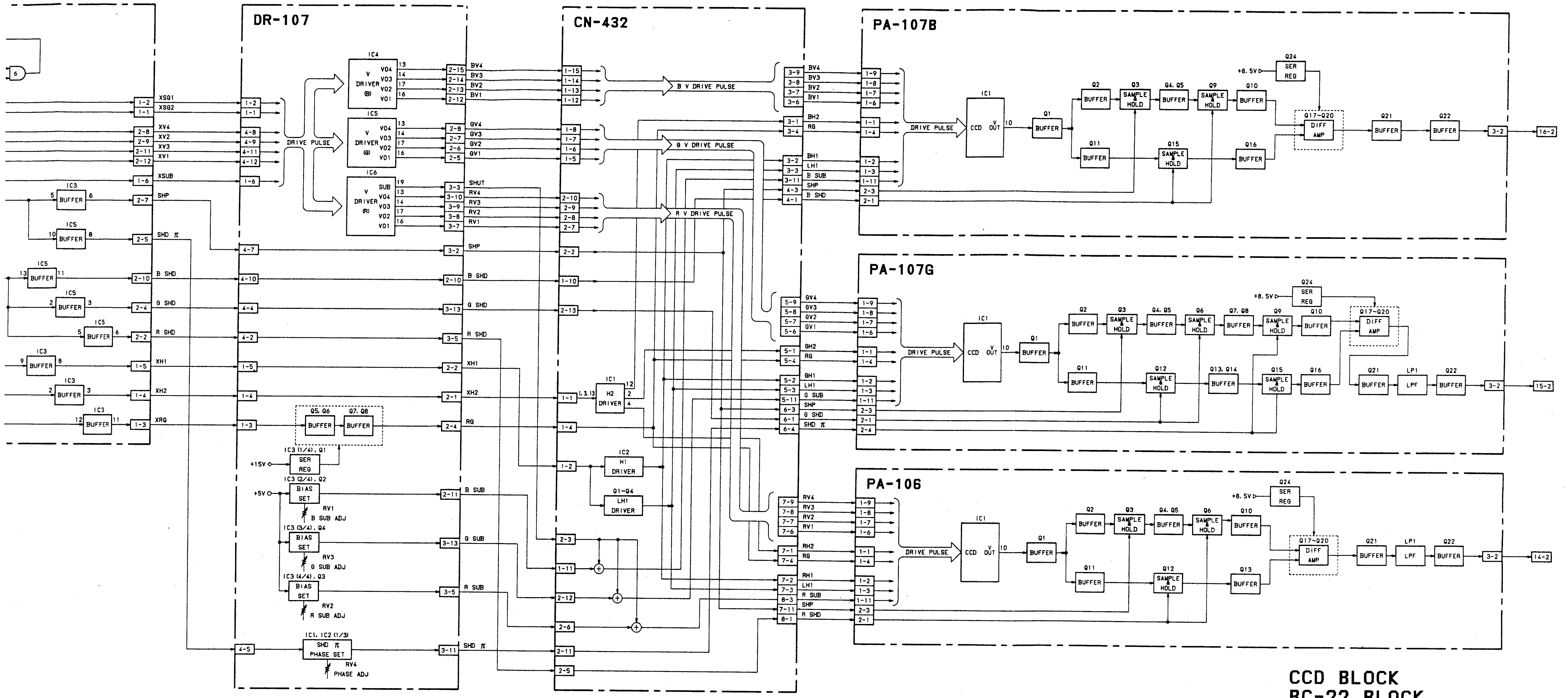
3

4

5

6

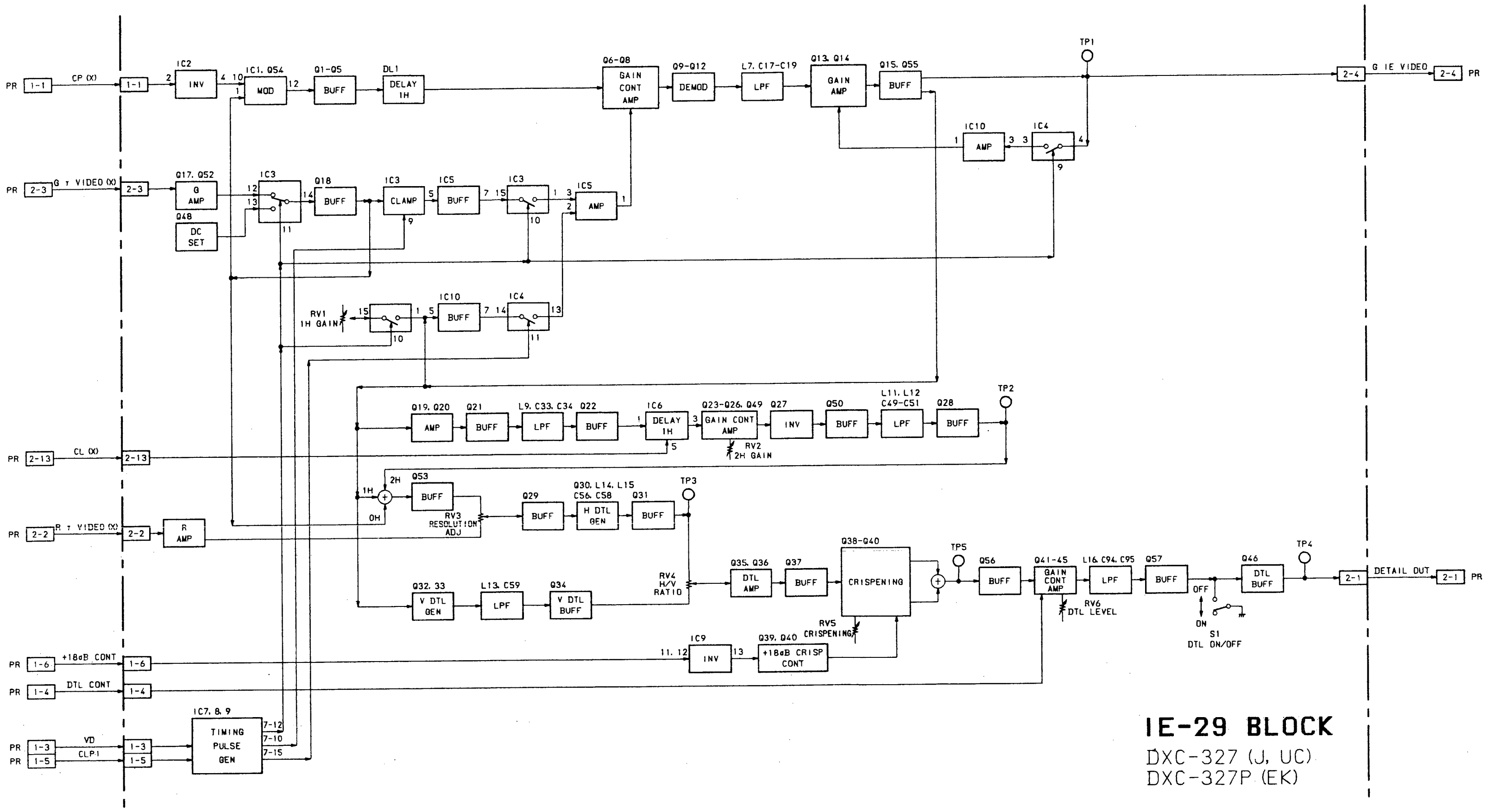

BC-22
TG-72
DR-107
CN-432
PA-107B
PA-107G
PA-106
MB
PBLK
CLP1
CLP3
SHUT EN
D0 CONT IN
D1 CONT IN
D2 CONT IN
VCO CONT
CP IX)
HD
VD
XCL IX)
CL IX)
IC1
DL
IC2
DATA DECODER
CP1
28MHz VCO
TIMING PULSE GEN.
BUFFER
XSG1
XSG2
XV4
XV2
XV3
XV1
XSUB
SHP
SHD π
B SHD
G SHD
R SHD
XH1
XH2
XRG
DRIVE PULSE
V DRIVER (B)
V DRIVER (G)
V DRIVER (R)
SHUT
Q5, Q6
Q7, Q8
SER REG
BIAS SET
+15V
+5V
RV1 B SUB ADJ
RV3 G SUB ADJ
RV2 R SUB ADJ
SHD π PHASE SET
RV4 PHASE ADJ
B SUB
G SUB
R SUB
B V DRIVE PULSE
G V DRIVE PULSE
R V DRIVE PULSE
H2 DRIVER
H1 DRIVER
Q1~Q4
LH1 DRIVER
CCD
V OUT
SAMPLE HOLD


DR-107
CN-432
PA-107B
PA-107G
PA-106
V DRIVER
DRIVE PULSE
B V DRIVE PULSE
G V DRIVE PULSE
R V DRIVE PULSE
BUFFER
SAMPLE & HOLD
DIFF AMP
SER REG
H2 DRIVER
H1 DRIVER
LH1 DRIVER
BIAS SET
B SUB ADJ
G SUB ADJ
R SUB ADJ
SHD π PHASE SET
PHASE ADJ
CCD V OUT
LPF
+15V
+5V
+8.5V
16-2
15-2
14-2

CCD BLOCK
BC-22 BLOCK
TG-72 BLOCK
DR-107 BLOCK
CN-432 BLOCK
PR-107B/107G/106 BLOCK

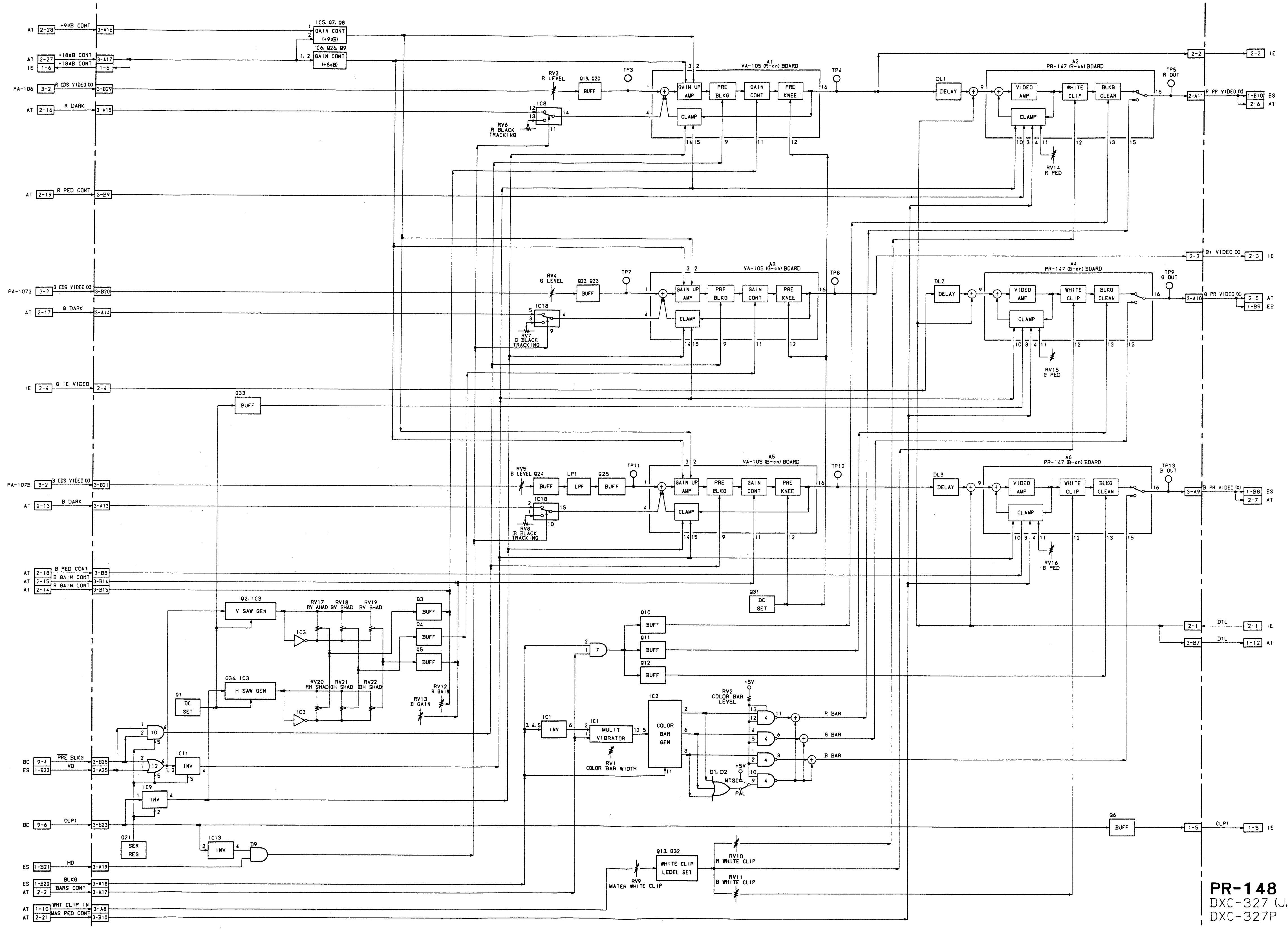
DXC-327 (J, UC)
DXC-327P (EK)

IE-29 BLOCK


PR
1-1
CP (X)
1-1
IC2
INV
IC1, Q54
MOD
Q1-Q5
BUFF
DL1
DELAY 1H
Q6-Q8
GAIN CONT AMP
Q9-Q12
DEMOD
L7, C17-C19
LPF
Q13, Q14
GAIN AMP
Q15, Q55
BUFF
TP1
2-4
G IE VIDEO
2-4
PR
IC10
AMP
IC4
PR
2-3
G γ VIDEO (X)
2-3
Q17, Q52
G AMP
Q48
DC SET
IC3
Q18
BUFF
IC3
CLAMP
IC5
BUFF
IC3
IC5
AMP
RV1
1H GAIN
IC10
BUFF
IC4
Q19, Q20
AMP
Q21
BUFF
L9, C33, C34
LPF
Q22
BUFF
IC6
DELAY 1H
Q23-Q26, Q49
GAIN CONT AMP
RV2
2H GAIN
Q27
INV
Q50
BUFF
L11, L12
C49-C51
LPF
Q28
BUFF
TP2
PR
2-13
CL (X)
2-13
1H
2H
0H
Q53
BUFF
RV3
RESOLUTION ADJ
Q29
BUFF
Q30, L14, L15
C56, C58
H DTL GEN
Q31
BUFF
TP3
PR
2-2
R γ VIDEO (X)
2-2
R AMP
Q32, 33
V DTL GEN
L13, C59
LPF
Q34
V DTL BUFF
RV4
H/V
RATIO
Q35, Q36
DTL AMP
Q37
BUFF
Q38-Q40
CRISPENING
RV5
CRISPENING
TP5
Q56
BUFF
Q41-45
GAIN CONT AMP
RV6
DTL LEVEL
L16, C94, C95
LPF
Q57
BUFF
OFF
ON
S1
DTL ON/OFF
Q46
DTL BUFF
TP4
2-1
DETAIL OUT
2-1
PR
PR
1-6
+18dB CONT
1-6
IC9
INV
Q39, Q40
+18dB CRISP CONT
PR
1-4
DTL CONT
1-4
IC7, 8, 9
TIMING PULSE GEN
7-12
7-10
7-15
PR
1-3
VD
1-3
PR
1-5
CLP1
1-5

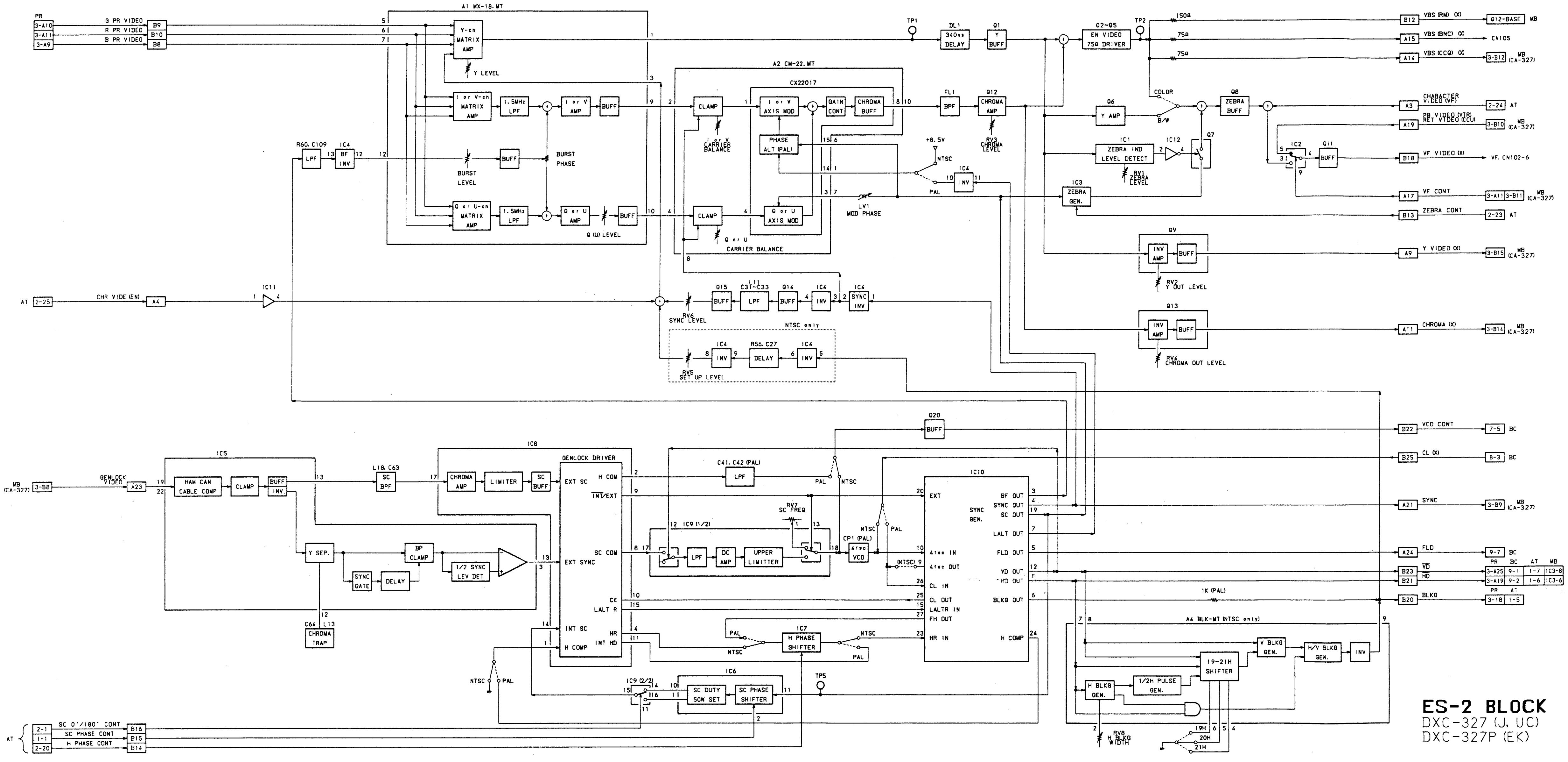
IE-29 BLOCK
DXC-327 (J, UC)
DXC-327P (EK)

PR-148 BLOCK


1
2
3
4
5
6
AT 2-28 +9dB CONT 3-A16
AT 2-27 +18dB CONT 3-A17
IE 1-6 +18dB CONT 1-6
PA-106 3-2 R CDS VIDEO 3-B29
AT 2-16 R DARK 3-A15
AT 2-19 R PED CONT 3-B9
PA-107B 3-2 G CDS VIDEO 3-B20
AT 2-17 G DARK 3-A14
IE 2-4 G IE VIDEO 2-4
PA-107B 3-2 B CDS VIDEO 3-B21
AT 2-13 B DARK 3-A13
AT 2-18 B PED CONT 3-B8
AT 2-15 B GAIN CONT 3-B14
AT 2-14 R GAIN CONT 3-B15
BC 9-4 PRE BLKG 3-B25
ES 1-B23 VD 3-A25
BC 9-6 CLP1 3-B23
ES 1-B21 HD 3-A19
ES 1-B20 BLKG 3-A18
AT 2-2 BARS CONT 3-A17
AT 1-10 WHT CLIP IN 3-A8
AT 2-21 MAS PED CONT 3-B10
IC5, Q7, Q8 GAIN CONT (+9dB)
IC6, Q26, Q9 GAIN CONT (+18dB)
RV3 R LEVEL
Q19, Q20 BUFF
IC8
RV6 R BLACK TRACKING
TP3
A1 VA-105 (R-ch) BOARD
GAIN UP AMP
PRE BLKG
GAIN CONT
PRE KNEE
CLAMP
TP4
DL1 DELAY
A2 PR-147 (R-ch) BOARD
VIDEO AMP
WHITE CLIP
BLKG CLEAN
TP5 R OUT
RV14 R PED
2-2 IE
2-A11 R PR VIDEO 1-B10 ES 2-6 AT
RV4 G LEVEL
Q22, Q23 BUFF
IC18
RV7 G BLACK TRACKING
TP7
A3 VA-105 (G-ch) BOARD
TP8
DL2 DELAY
A4 PR-147 (G-ch) BOARD
TP9 G OUT
RV15 G PED
2-3 G1 VIDEO 2-3 IE
3-A10 G PR VIDEO 2-5 AT 1-B9 ES
Q33 BUFF
RV5 B LEVEL Q24 BUFF
LP1 LPF
Q25 BUFF
IC18
RV8 B BLACK TRACKING
TP11
A5 VA-105 (B-ch) BOARD
TP12
DL3 DELAY
A6 PR-147 (B-ch) BOARD
TP13 B OUT
RV16 B PED
3-A9 B PR VIDEO 1-B8 ES 2-7 AT
Q31 DC SET
Q2, IC3 V SAW GEN
RV17 RV AHAD
RV18 GV SHAD
RV19 BV SHAD
Q3 BUFF
Q4 BUFF
Q5 BUFF
Q34, IC3 H SAW GEN
RV20 RH SHAD
RV21 GH SHAD
RV22 BH SHAD
RV12 R GAIN
RV13 B GAIN
Q1 DC SET
IC3
IC10
IC11 INV
IC9 INV
Q21 SER REG
IC13 INV
D9
Q10 BUFF
Q11 BUFF
Q12 BUFF
IC7
IC1 INV
IC1 MULTI VIBRATOR
RV1 COLOR BAR WIDTH
IC2 COLOR BAR GEN
RV2 COLOR BAR LEVEL
+5V
IC4
R BAR
G BAR
B BAR
D1, D2
NTSC
PAL
Q13, Q32 WHITE CLIP LEDEL SET
RV9 MATER WHITE CLIP
RV10 R WHITE CLIP
RV11 B WHITE CLIP
2-1 DTL 2-1 IE
3-B7 DTL 1-12 AT
Q6 BUFF
1-5 CLP1 1-5 IE

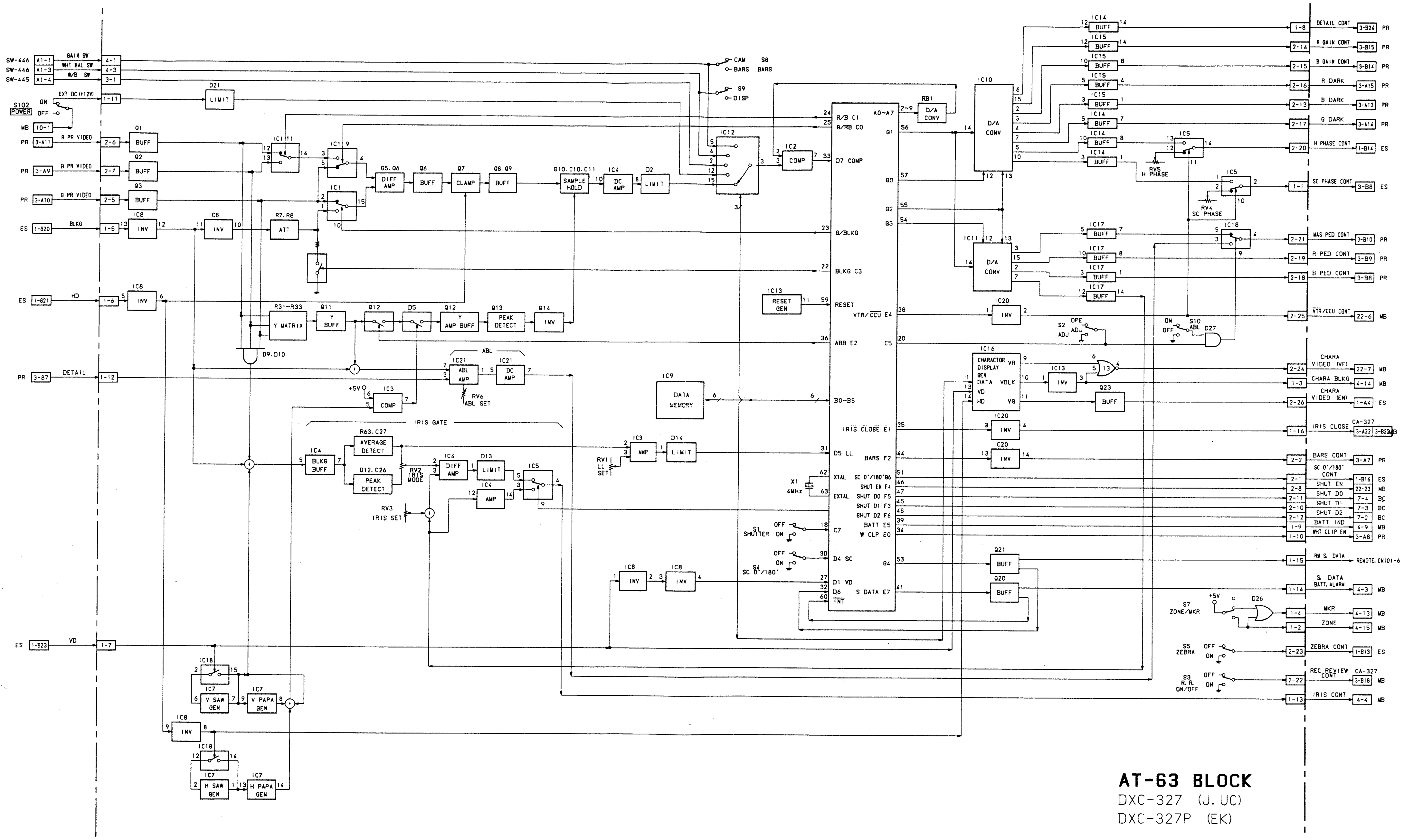
PR-148 BLOCK
DXC-327 (J, UC)
DXC-327P (EK)

ES-2 BLOCK


PR
3-A10
3-A11
3-A9
G PR VIDEO
R PR VIDEO
B PR VIDEO
B9
B10
B8
A1 MX-18.MT
Y-ch MATRIX AMP
Y LEVEL
I or V-ch MATRIX AMP
1.5MHz LPF
I or V AMP
BUFF
BURST LEVEL
BURST PHASE
Q or U-ch MATRIX AMP
Q or U AMP
Q (U) LEVEL
R60. C109
LPF
IC4
BF INV
AT
2-25
CHR VIDE (EN)
A4
IC11
A2 CM-22.MT
CLAMP
I or V CARRIER BALANCE
Q or U CARRIER BALANCE
CX22017
I or V AXIS MOD
GAIN CONT
CHROMA BUFF
PHASE ALT (PAL)
Q or U AXIS MOD
+8.5V
NTSC
PAL
INV
LV1 MOD PHASE
Q15
L11 C31~C33
Q14
SYNC INV
RV6 SYNC LEVEL
NTSC only
R56. C27
DELAY
RV5 SET UP LEVEL
TP1
DL1
340ns DELAY
Q1
Y BUFF
FL1
BPF
Q12
CHROMA AMP
RV3 CHROMA LEVEL
Q2~Q5
EN VIDEO 75Ω DRIVER
TP2
150Ω
75Ω
75Ω
COLOR
B/W
Q6
Y AMP
Q8
ZEBRA BUFF
IC1
ZEBRA IND LEVEL DETECT
RV1 ZEBRA LEVEL
IC12
Q7
IC3
ZEBRA GEN.
IC2
Q11
Q9
INV AMP
RV2 Y OUT LEVEL
Q13
RV4 CHROMA OUT LEVEL
B12
VBS (RM) (X)
Q12-BASE
MB
A15
VBS (BNC) (X)
CN105
A14
VBS (CCQ) (X)
3-B12
MB (CA-327)
A3
CHARACTER VIDEO (VF)
2-24
AT
A19
PB VIDEO (VTR) RET VIDEO (CCU)
3-B10
B18
VF VIDEO (X)
VF. CN102-6
A17
VF CONT
3-A11
3-B11
B13
ZEBRA CONT
2-23
A9
Y VIDEO (X)
3-B15
A11
CHROMA (X)
3-B14
MB (CA-327)
3-B8
GENLOCK VIDEO
A23
IC5
HAM CAN CABLE COMP
BUFF INV
Y SEP.
SYNC GATE
BP CLAMP
1/2 SYNC LEV DET
C64 L13
CHROMA TRAP
L18. C63
SC BPF
IC8
CHROMA AMP
LIMITER
SC BUFF
GENLOCK DRIVER
EXT SC
H COM
INT/EXT
SC COM
EXT SYNC
CK
LALT R
INT SC
H COMP
HR
INT HD
NTSC
PAL
Q20
C41. C42 (PAL)
LPF
RV7 SC FREQ
12 IC9 (1/2)
DC AMP
UPPER LIMITTER
CP1 (PAL)
4fsc VCO
(NTSC)
IC10
EXT
SYNC GEN.
4fsc IN
4fsc OUT
CL IN
CL OUT
LALTR IN
FH OUT
HR IN
BF OUT
SYNC OUT
SC OUT
LALT OUT
FLD OUT
VD OUT
HD OUT
BLKG OUT
H COMP
IC7
H PHASE SHIFTER
IC9 (2/2)
IC6
SC DUTY 50% SET
SC PHASE SHIFTER
TP5
2-1
1-1
2-20
SC 0°/180° CONT
SC PHASE CONT
H PHASE CONT
B16
B15
B14
B22
VCO CONT
7-5
BC
B25
CL (X)
8-3
A21
SYNC
3-B9
A24
FLD
9-7
B23
VD
B21
HD
PR
BC
AT
MB
3-A25
9-1
1-7
IC3-8
3-A19
9-2
1-6
IC3-6
1K (PAL)
B20
BLKG
3-18
1-5
A4 BLK-MT (NTSC only)
V BLKG GEN.
H/V BLKG GEN.
19~21H SHIFTER
H BLKG GEN.
1/2H PULSE GEN.
RV8 H BLKG WIDTH
19H
20H
21H

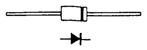
ES-2 BLOCK
DXC-327 (J, UC)
DXC-327P (EK)

AT-63 BLOCK

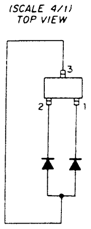

SW-446 A1-1 GAIN SW 4-1
SW-446 A1-3 WHT BAL SW 4-3
SW-445 A1-4 W/B SW 3-1
EXT DC (+12V) 1-11
S102 POWER ON OFF
MB 10-1
PR 3-A11 R PR VIDEO 2-6
PR 3-A9 B PR VIDEO 2-7
PR 3-A10 G PR VIDEO 2-5
ES 1-B20 BLKG 1-5
ES 1-B21 HD 1-6
PR 3-B7 DETAIL 1-12
ES 1-B23 VD 1-7
Q1 BUFF
Q2 BUFF
Q3 BUFF
IC8 INV
D21 LIMIT
IC1
R7, R8 ATT
Q5, Q6 DIFF AMP
Q6 BUFF
Q7 CLAMP
Q8, Q9 BUFF
Q10, C10, C11 SAMPLE HOLD
IC4 DC AMP
D2 LIMIT
IC12
IC2 COMP
CAM S8 BARS BARS
S9 DISP
R31-R33 Y MATRIX
Q11 Y BUFF
Q12
D5
Q12 Y AMP BUFF
Q13 PEAK DETECT
Q14 INV
D9, D10
ABL
IC21 ABL AMP
IC21 DC AMP
RV6 ABL SET
+5V IC3 COMP
IRIS GATE
IC4 BLKG BUFF
R63, C27 AVERAGE DETECT
D12, C26 PEAK DETECT
RV2 IRIS MODE
IC4 DIFF AMP
D13 LIMIT
IC4 AMP
IC5
RV3 IRIS SET
IC3 AMP
D14 LIMIT
RV1 LL SET
IC9 DATA MEMORY
IC13 RESET GEN
IC18 IC7 V SAW GEN
IC7 V PAPA GEN
IC8 INV
IC18 IC7 H SAW GEN
IC7 H PAPA GEN
R/B C1 A0-A7
G/RB C0
D7 COMP
G/BLKG
BLKG C3
RESET
VTR/CCU E4
ABB E2
C5
B0-B5
IRIS CLOSE E1
D5 LL
BARS F2
X1 4MHz
XTAL SC 0°/180° B6
SHUT EN F4
EXTAL SHUT D0 F5
SHUT D1 F3
SHUT D2 F6
BATT E5
W CLP E0
S1 SHUTTER OFF ON
C7
S4 SC 0°/180° OFF ON
D4 SC
D1 VD
D6 INT
S DATA E7
RB1 D/A CONV
IC10 D/A CONV
IC11 D/A CONV
IC14 BUFF
IC15 BUFF
IC17 BUFF
IC5
RV5 H PHASE
RV4 SC PHASE
IC18
IC20 INV
S2 OPE ADJ
S10 ABL ON OFF D27
IC16 CHARACTOR DISPLAY GEN DATA VD HD VR VBLK VB
IC13 INV
Q23 BUFF
Q21 BUFF
Q20 BUFF
S7 ZONE/MKR +5V D26
S5 ZEBRA OFF ON
S3 R.R. ON/OFF OFF ON
1-8 DETAIL CONT 3-B24 PR
2-14 R GAIN CONT 3-B15 PR
2-15 B GAIN CONT 3-B14 PR
2-16 R DARK 3-A15 PR
2-13 B DARK 3-A13 PR
2-17 G DARK 3-A14 PR
2-20 H PHASE CONT 1-B14 ES
1-1 SC PHASE CONT 3-B8 ES
2-21 MAS PED CONT 3-B10 PR
2-19 R PED CONT 3-B9 PR
2-18 B PED CONT 3-B8 PR
2-25 VTR/CCU CONT 22-6 MB
2-24 CHARA VIDEO (VF) 22-7 MB
1-3 CHARA BLKG 4-14 MB
2-26 CHARA VIDEO (EN) 1-A4 ES
1-16 IRIS CLOSE CA-327 3-A22 3-B22 MB
2-2 BARS CONT 3-A7 PR
2-1 SC 0°/180° CONT 1-B16 ES
2-8 SHUT EN 22-23 MB
2-11 SHUT D0 7-4 BC
2-10 SHUT D1 7-3 BC
2-12 SHUT D2 7-2 BC
1-9 BATT IND 4-9 MB
1-10 WHT CLIP EN 3-A8 PR
1-15 RM S. DATA REMOTE CN101-6
1-14 S. DATA BATT. ALARM 4-3 MB
1-4 MKR 4-13 MB
1-2 ZONE 4-15 MB
2-23 ZEBRA CONT 1-B13 ES
2-22 REC REVIEW CONT CA-327 3-B18 MB
1-13 IRIS CONT 4-4 MB

AT-63 BLOCK
DXC-327 (J, UC)
DXC-327P (EK)

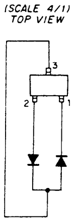
DIODE, TRANSISTOR



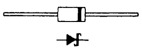
1S1585


(SCALE 4/1)
TOP VIEW
3
2
1

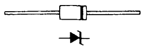
1S2836


(SCALE 4/1)
TOP VIEW
3
2
1

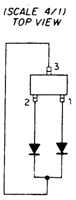
1SS226



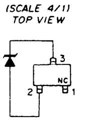
1SS97



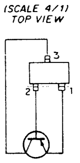
HZ ? BLL


(SCALE 4/1)
TOP VIEW
3
2
1

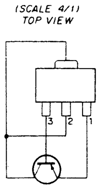
MA152WK


(SCALE 4/1)
TOP VIEW
3
NC
2
1

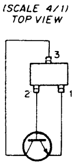
RD ? ?M-B ?


(SCALE 4/1)
TOP VIEW
3
2
1

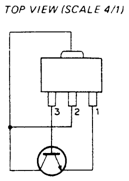
2SA1162
2SA1226
2SA1462


(SCALE 4/1)
TOP VIEW
3
2
1

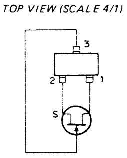
2SB798


(SCALE 4/1)
TOP VIEW
3
2
1

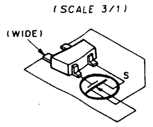
2SC1623
2SC2757
2SC3735


TOP VIEW (SCALE 4/1)
3
2
1

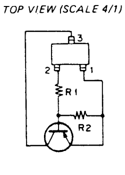
2SC3617
2SD999


TOP VIEW (SCALE 4/1)
3
2
1
S

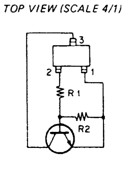
2SK94


(SCALE 3/1)
(WIDE)
S

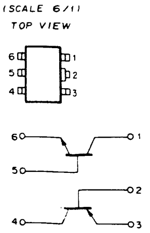
3SK163


TOP VIEW (SCALE 4/1)
3
2
1
R1
R2

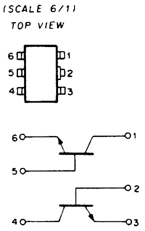
DTA114YK (R1 = 10K, R2 = 47K)


TOP VIEW (SCALE 4/1)
3
2
1
R1
R2

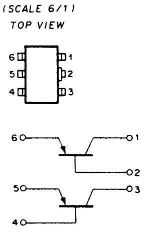
DTC114YK (R1 = 10K, R2 = 47K)


(SCALE 6/1)
TOP VIEW
6
5
4
1
2
3

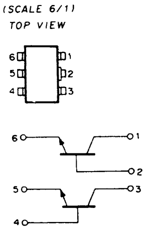
XN4601


(SCALE 6/1)
TOP VIEW
6
5
4
1
2
3

XN4608


(SCALE 6/1)
TOP VIEW
6
5
4
1
2
3

XN6401
XN6435


(SCALE 6/1)
TOP VIEW
6
5
4
1
2
3

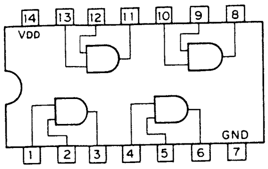
XN6501
XN6534

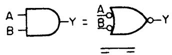
SECTION B
SEMICONDUCTOR

The circuit diagram of IC is obtained from the IC data book published by the manufacturer.

TYPE	PAGE
1S1585	B-2
1S2836	B-2
1SS226	B-2
1SS97	B-2
2SA1162	B-2
2SA1226	B-2
2SA1462	B-2
2SB798	B-2
2SC1623	B-2
2SC2757	B-2
2SC3617	B-2
2SC3735	B-2
2SD999	B-2
2SK94	B-2
3SK163	B-2
74AC08SJ	B-3
BX1340	B-3
CX22017	B-3
CXD1217M	B-3
CXD1250M	B-4
CXD1255Q	B-5
CXD8095Q	B-6
CXD8154M	B-7
CXL5504M	B-7
DTA114YK	B-2
DTC114YK	B-2
HZ ? BLL	B-2
LM2903M	B-7
M6M80011L	B-7
MA152WK	B-2
MB88342PF	B-8
MC14001BF	B-8
MC14051BF	B-8
MC14053BF	B-8
MC14069UBF	B-8
MC14557BF	B-8
NJM062M	B-9
NJM319M	B-9
RC1496M	B-9
RD ? ?M-B ?	B-2
SC14S81F	B-9
SC7SU04F	B-9
SN74HC02NS	B-9
SN74HC04NS	B-9
SN74HC08NS	B-3
SN74HC174NS	B-10
SN74HC27NS	B-10
SN74LS221NS	B-10
TC4069UBF	B-8
TC40H000F	B-10
TC40H027F	B-10
TC40H076AF	B-10
TC40H193F	B-11
TC4S01F	B-11
TC4S11F	B-11
TC4S30F	B-11
TC4S71F	B-11
TC4S81F	B-9
TC4SU69F	B-11
TC74AC04F	B-9
TL062CPS	B-9
TL064CNS	B-11
TL082CPS	B-12
uPC311G2	B-12
uPC324G2	B-12
uPD6142G-101	B-12
XN4601	B-2
XN4608	B-2
XN6401	B-2
XN6435	B-2
XN6501	B-2
XN6534	B-2

74AC08SJ (NS) FLAT PACKAGE
SN74HC08NS (TI) FLAT PACKAGE
C-MOS QUAD 2-INPUT AND GATE
– TOP VIEW –


14
13
12
11
10
9
8
VDD
GND
1
2
3
4
5
6
7



$Y = A \cdot B = \overline{\overline{A} + \overline{B}}$

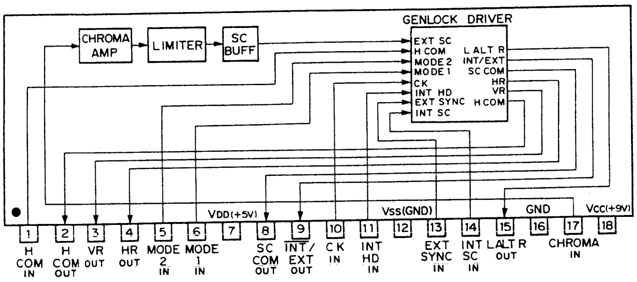
A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL

NOTE :

TYPE	VDD
TC74AC08F	+2 to +5.5V
OTHER TYPES	+2 to +6V

BX1340 (SONY)
SC LIMITER AND GENLOCK DRIVER
– REAR VIEW –

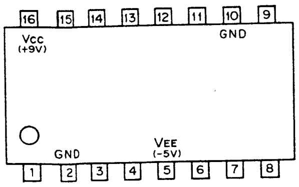

GENLOCK DRIVER
CHROMA AMP
LIMITER
SC BUFF
EXT SC
H COM
MODE 2
MODE 1
CK
INT HD
EXT SYNC
INT SC
L ALT R
INT/EXT
SC COM
HR
VR
H COM
VDD(+5V)
Vss(GND)
GND
Vcc(+9V)
1 H COM IN
2 H COM OUT
3 VR OUT
4 HR OUT
5 MODE 2 IN
6 MODE 1 IN
7
8 SC COM OUT
9 INT/ EXT OUT
10 CK IN
11 INT HD IN
12
13 EXT SYNC IN
14 INT SC IN
15 LALT R OUT
16
17 CHROMA IN
18

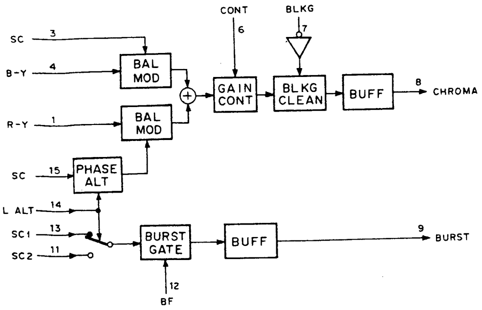
MODE SELECTION

MODE 1	MODE 2	MODE
1	1	NTSC
0	0	PAL

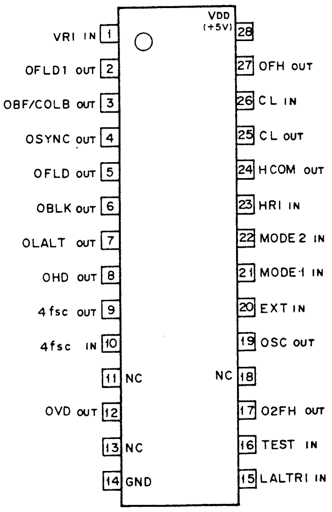
0 ; LOW LEVEL
1 ; HIGH LEVEL

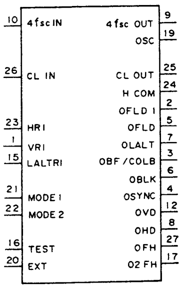
CX22017 (SONY)
VIDEO SIGNAL PROCESSOR
– TOP VIEW –


16
15
14
13
12
11
10
9
Vcc (+9V)
GND
GND
VEE (-5V)
1
2
3
4
5
6
7
8


CONT
6
BLKG
7
SC 3
B-Y 4
BAL MOD
R-Y 1
BAL MOD
GAIN CONT
BLKG CLEAN
BUFF
8 CHROMA
SC 15
PHASE ALT
L ALT 14
SC1 13
SC2 11
BURST GATE
BUFF
9 BURST
12
BF

CXD1217M (SONY) FLAT PACKAGE
C-MOS SYNC GENERATOR
– TOP VIEW –

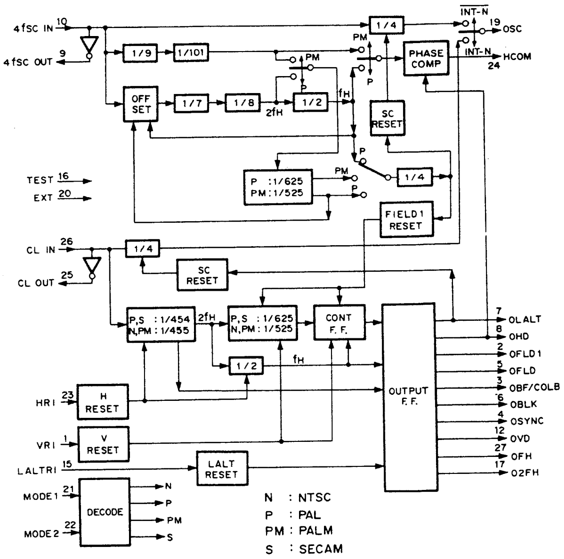

VDD (+5V)
VRI IN 1
OFLD1 OUT 2
OBF/COLB OUT 3
OSYNC OUT 4
OFLD OUT 5
OBLK OUT 6
OLALT OUT 7
OHD OUT 8
4fsc OUT 9
4fsc IN 10
11 NC
OVD OUT 12
13 NC
14 GND
28
27 OFH OUT
26 CL IN
25 CL OUT
24 HCOM OUT
23 HRI IN
22 MODE 2 IN
21 MODE 1 IN
20 EXT IN
19 OSC OUT
NC 18
17 02FH OUT
16 TEST IN
15 LALTRI IN


10 4fsc IN
4fsc OUT 9
OSC 19
26 CL IN
CL OUT 25
H COM 24
OFLD 1 2
23 HRI
OFLD 5
1 VRI
OLALT 7
15 LALTRI
OBF/COLB 3
OBLK 6
21 MODE 1
OSYNC 4
22 MODE 2
OVD 12
OHD 8
16 TEST
OFH 27
20 EXT
02 FH 17

SYSTEM	4fsc	CLOCK
NTSC	910fH	910fH
PAL	1135fH+2fv	908fH
PALM	909fH	910fH
SECAM	—	908fH

INPUT		SYSTEM
MODE1	MODE2	
0	0	NTSC
0	1	SECAM
1	0	PALM
1	1	PAL

0 ; LOW LEVEL
1 ; HIGH LEVEL


4fsc IN 10
4fsc OUT 9
1/9
1/101
1/4
INT-N
19 OSC
PM
PM
P
PHASE COMP
INT-N
HCOM 24
OFF SET
1/7
1/8
2fH
1/2
fH
SC RESET
P
PM
1/4
TEST 16
EXT 20
P :1/625
PM :1/525
PM
P
FIELD1 RESET
CL IN 26
CL OUT 25
1/4
SC RESET
P,S :1/454
N,PM :1/455
2fH
P,S :1/625
N,PM :1/525
CONT F. F.
1/2
fH
OUTPUT F. F.
7 OLALT
8 OHD
2 OFLD1
5 OFLD
3 OBF/COLB
6 OBLK
4 OSYNC
12 OVD
27 OFH
17 02FH
HRI 23
H RESET
VRI 1
V RESET
LALTRI 15
LALT RESET
MODE1 21
MODE2 22
DECODE
N
P
PM
S

N : NTSC
P : PAL
PM : PALM
S : SECAM

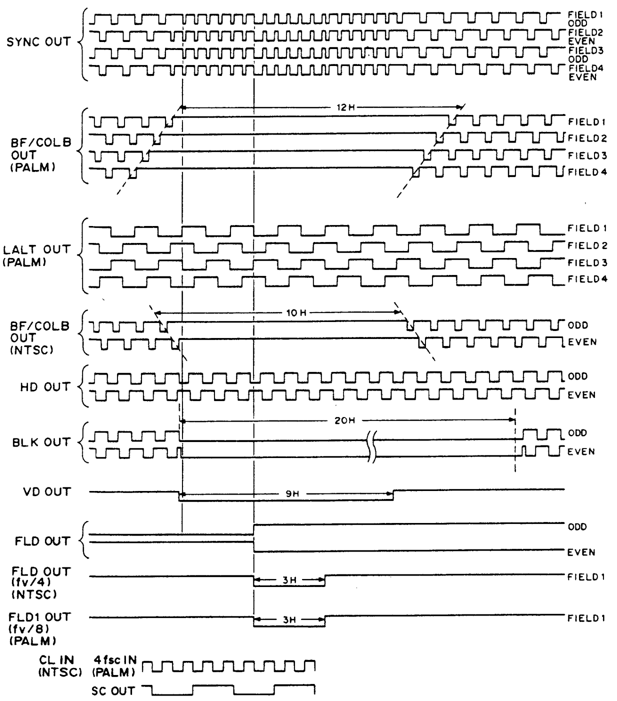
INPUT

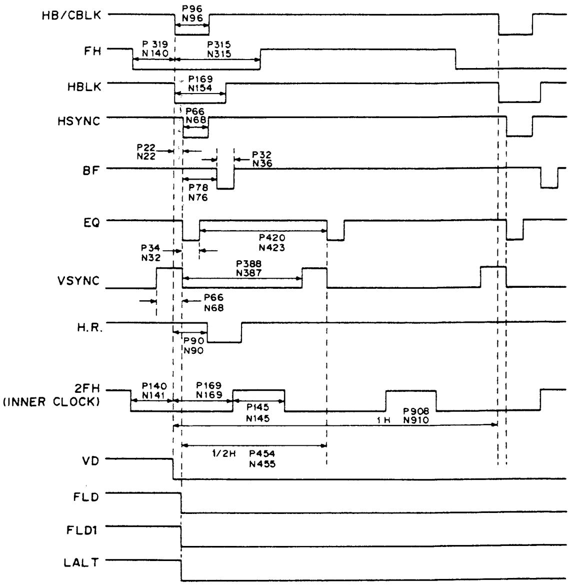
4fSC IN	; 4fSC INPUT
CL IN	; CLOCK INPUT
EXT	; SYNC MODE SELECT (L ; INTERNAL/H ; EXTERNAL)
HRI	; H RESET
LALTRI	; LINE CHANGE RESET
MODE 1,2	; SYSTEM SELECT
VRI	; V RESET

OUT PUT

4fSC OUT	; 4fSC OUTPUT
CL OUT	; CLOCK OUTPUT
HCOM	; PHASE COMPARATOR
O2fH	; 2fH OUTPUT
OBF/COLB	; BURST FLAG/COLOR BLANKING
OBLK	; COMPOSITE BLANKING
OFH	; H FREQUENCE
OFLD	; EVEN, ODD
OFLD1	; FIELD1
OHD	; H DRIVE
OLALT	; LINE CHANGE
OSC	; SUBCARRIER
OSYNC	; COMPOSITE SYNC
OVD	; V DRIVE

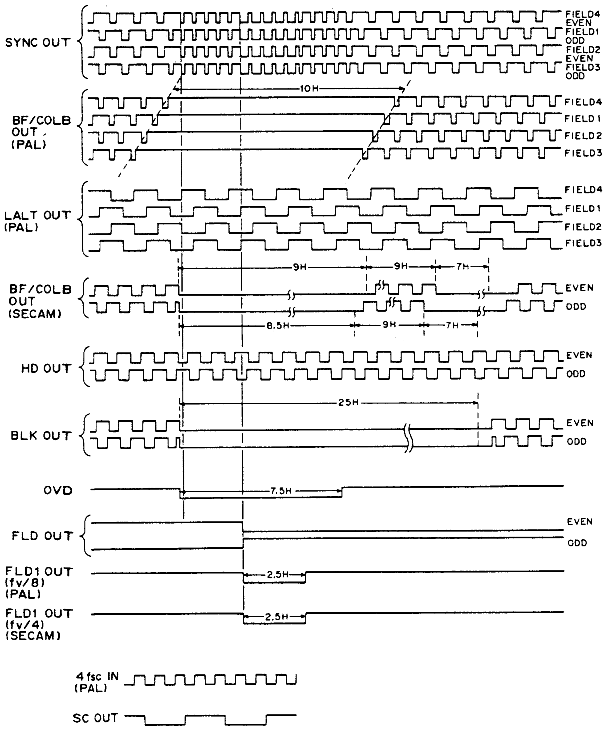
(NTSC, PALM)


SYNC OUT
FIELD1 ODD
FIELD2 EVEN
FIELD3 ODD
FIELD4 EVEN
BF/COLB OUT (PALM)
12H
FIELD1
FIELD2
FIELD3
FIELD4
LALT OUT (PALM)
BF/COLB OUT (NTSC)
10H
ODD
EVEN
HD OUT
BLK OUT
20H
VD OUT
9H
FLD OUT
FLD OUT (fv/4) (NTSC)
3H
FLD1 OUT (fv/8) (PALM)
CL IN (NTSC)
4fsc IN (PALM)
SC OUT


HB/CBLK
P96 N96
FH
P319 N140
P315 N315
HBLK
P169 N154
HSYNC
P66 N68
BF
P22 N22
P32 N36
P78 N76
EQ
P420 N423
P34 N32
VSYNC
P388 N387
P66 N68
H.R.
P90 N90
2FH (INNER CLOCK)
P140 N141
P169 N169
P145 N145
P908 N910
1H
VD
1/2H
P454 N455
FLD
FLD1
LALT

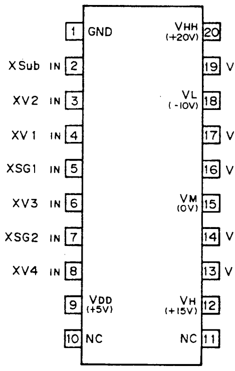
P: PAL, SECAM
N: NTSC, PALM

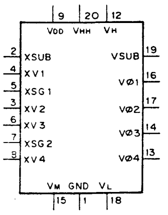
(PAL, SECAM)


SYNC OUT
FIELD4 EVEN
FIELD1 ODD
FIELD2 EVEN
FIELD3 ODD
BF/COLB OUT (PAL)
10H
FIELD4
FIELD1
FIELD2
FIELD3
LALT OUT (PAL)
BF/COLB OUT (SECAM)
9H
9H
7H
8.5H
9H
7H
EVEN
ODD
HD OUT
BLK OUT
25H
OVD
7.5H
FLD OUT
FLD1 OUT (fv/8) (PAL)
2.5H
FLD1 OUT (fv/4) (SECAM)
4fsc IN (PAL)
SC OUT

CXD1250M (SONY) FLAT PACKAGE

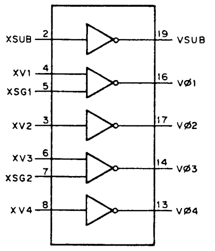
C-MOS VERTICAL CLOCK DRIVER FOR CCD
- TOP VIEW -


1 GND
XSub IN 2
XV2 IN 3
XV1 IN 4
XSG1 IN 5
XV3 IN 6
XSG2 IN 7
XV4 IN 8
9 VDD (+5V)
10 NC
VHH (+20V) 20
19 VSub OUT
VL (-10V) 18
17 VØ2 OUT
16 VØ1 OUT
VM (0V) 15
14 VØ3 OUT
13 VØ4 OUT
VH (+15V) 12
NC 11


9
20
12
VDD
VHH
VH
2 XSUB
4 XV1
5 XSG1
3 XV2
6 XV3
7 XSG2
8 XV4
VSUB 19
VØ1 16
VØ2 17
VØ3 14
VØ4 13
VM
GND
VL
15
1
18

INPUT
XSG1, XSG2 : SENSOR GATE PULSE INPUT
XSUB : CCD ELECTRIC CHARGE SWEEPING AWAY PULSE INPUT
XV1-XV4 : VERTICAL REGISTER TRANSMISSION CLOCK INPUT

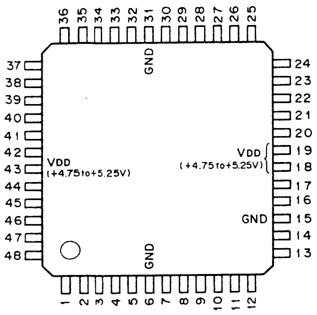
OUTPUT
VSUB : CCD ELECTRIC CHARGE SWEEPING AWAY PULSE OUTPUT
V ϕ 1-V ϕ 4 : VERTICAL REGISTER TRANSMISSION CLOCK OUTPUT


XSUB 2
19 VSUB
XV1 4
XSG1 5
16 VØ1
XV2 3
17 VØ2
XV3 6
XSG2 7
14 VØ3
XV4 8
13 VØ4

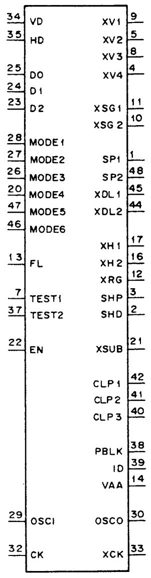
CXD1255Q (SONY) FLAT PACKAGE

C-MOS SCANNING SYSTEM TIMING SIGNAL GENERATOR FOR CCD CAMERA

– TOP VIEW –


36 35 34 33 32 31 30 29 28 27 26 25
37 38 39 40 41 42 43 44 45 46 47 48
24 23 22 21 20 19 18 17 16 15 14 13
1 2 3 4 5 6 7 8 9 10 11 12
GND
VDD (+4.75to+5.25V)
VDD (+4.75to+5.25V)
GND
GND

PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL
1	O	SP1	13	I	FL	25	I	D0	37	I	TEST2
2	O	SHD	14	O	VAA	26	I	MODE3	38	O	PBLK
3	O	SHP	15	–	GND	27	I	MODE2	39	O	ID
4	O	XV4	16	O	XH2	28	I	MODE1	40	O	CLP3
5	O	XV2	17	O	XH1	29	I	OSCI	41	O	CLP2
6	–	GND	18	–	VDD	30	O	OSCO	42	O	CLP1
7	I	TEST1	19	–	VDD	31	–	GND	43	–	VDD
8	O	XV3	20	I	MODE4	32	I	CK	44	O	XDL2
9	O	XV1	21	O	XSUB	33	O	XCK	45	O	XDL1
10	O	XSG2	22	I	EN	34	I	VD	46	I	MODE6
11	O	XSG1	23	I	D2	35	I	HD	47	I	MODE5
12	O	XRG	24	I	D1	36	O	CL	48	O	SP2

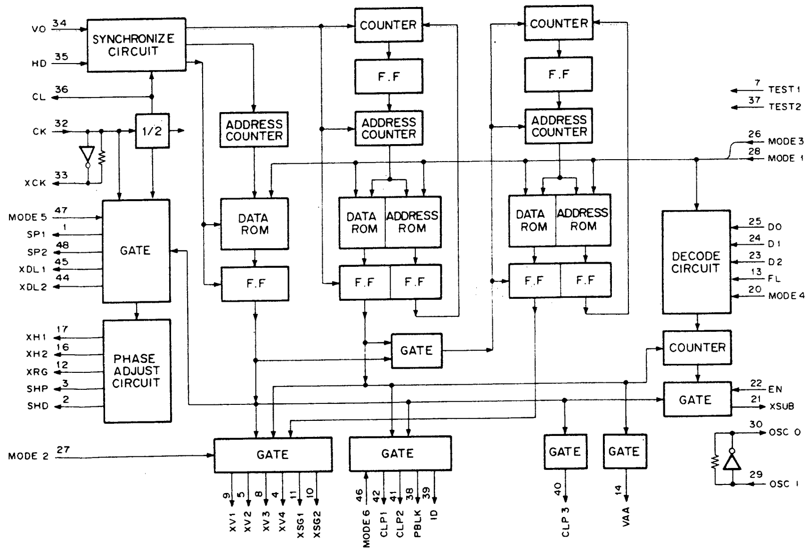

34 VD
35 HD
25 D0
24 D1
23 D2
28 MODE1
27 MODE2
26 MODE3
20 MODE4
47 MODE5
46 MODE6
13 FL
7 TEST1
37 TEST2
22 EN
29 OSCI
32 CK
XV1 9
XV2 5
XV3 8
XV4 4
XSG1 11
XSG2 10
SP1 1
SP2 48
XDL1 45
XDL2 44
XH1 17
XH2 16
XRG 12
SHP 3
SHD 2
XSUB 21
CLP1 42
CLP2 41
CLP3 40
PBLK 38
ID 39
VAA 14
OSCO 30
XCK 33

INPUT

CK	; INVERTER INPUT FOR DUTY CONTROL (MAIN CLOCK)
D0 – D2	; ELECTRONIC SHUTTER SPEED CHANGE
EN	; ELECTRONIC SHUTTER ON/OFF (0 ; OFF 1 ; ON)
FL	; ELECTRONIC SHUTTER FLICKER LESS
HD	; HORIZONTAL DRIVE PULSE
MODE1	; COLOR/MONOCHROME (B/W) CHANGE (0 ; COLOR 1 ; B/W)
MODE2	; FIELD/FRAME STORAGE CHANGE (0 ; FIELD 1 ; FRAME)
MODE3	; NTSC/PAL CHANGE (0 ; NTSC 1 ; PAL)
MODE4	; ELECTRONIC SHUTTER SPEED INPUT SELECT (0 ; SELIAL IN 1 ; PARALLEL IN)
MODE5	: COLOR/MONOCHROME (B/W) CHANGE (0 ; COLOR 1 ; B/W)
MODE6	; PBLK CONTROL PULSE (0 ; NARROW 1 ; WIDE)
OSCI	; INVERTER INPUT FOR OSCILLATOR
TEST1	; OPEN
TEST2	; GND
VD	; VERTICAL DRIVE SIGNAL

OUTPUT

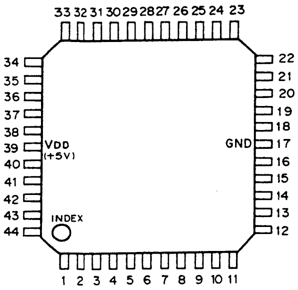
CL	; CLOCK OUTPUT FOR SYNC GENERATOR
CLP1 – CLP3	; CLAMP PULSE
ID	; LINE DISCRIMINATE PULSE
OSCO	; INVERTER OUTPUT FOR OSCILLATOR
PBLK	; PRE-BLANKING PULSE
SHD	; CCD DATA OUTPUT S/H PULSE
SHP	; CCD PRE CHARGE LEVEL S/H PULSE
SP1,SP2	; COLOR SEPARATE S/H PULSE
VAA	; VERTICAL BLANKING CLEANING PULSE
XCK	; INVERTER OUTPUT FOR DUTY CONTROL
XDL1 – XDL3	; CLOCK PULSE FOR DELAY LINE
XH1,XH2	; H REGISTER CLOCK PULSE
XRG	; CCD OUTPUT RESET PULSE
XSUB	; ELECTRIC CHARGE SWEEPING AWAY PULSE
XSG1,XSG2	; SENSOR ELECTRIC CHARGE READ OUT PULSE
XV1 – XV4	; V REGISTER CLOCK PULSE

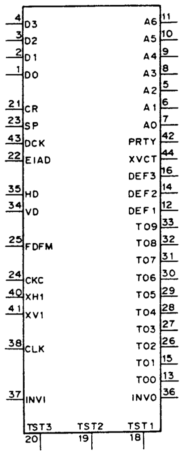

VD 34
HD 35
CL 36
CK 32
XCK 33
SYNCHRONIZE CIRCUIT
1/2
MODE 5 47
SP1 1
SP2 48
XDL1 45
XDL2 44
GATE
XH1 17
XH2 16
XRG 12
SHP 3
SHD 2
PHASE ADJUST CIRCUIT
MODE 2 27
ADDRESS COUNTER
DATA ROM
F.F
COUNTER
F.F
ADDRESS COUNTER
DATA ROM
ADDRESS ROM
F.F
F.F
GATE
COUNTER
F.F
ADDRESS COUNTER
DATA ROM
ADDRESS ROM
F.F
F.F
7 TEST1
37 TEST2
26 MODE3
28 MODE1
DECODE CIRCUIT
25 D0
24 D1
23 D2
13 FL
20 MODE4
COUNTER
GATE
22 EN
21 XSUB
30 OSC O
29 OSC I
GATE
GATE
GATE
GATE
9 XV1
5 XV2
8 XV3
4 XV4
11 XSG1
10 XSG2
46 MODE6
42 CLP1
41 CLP2
38 PBLK
39 ID
40 CLP3
14 VAA

CXD8095Q (SONY) FLAT PACKAGE

C-MOS GATE ARRAY

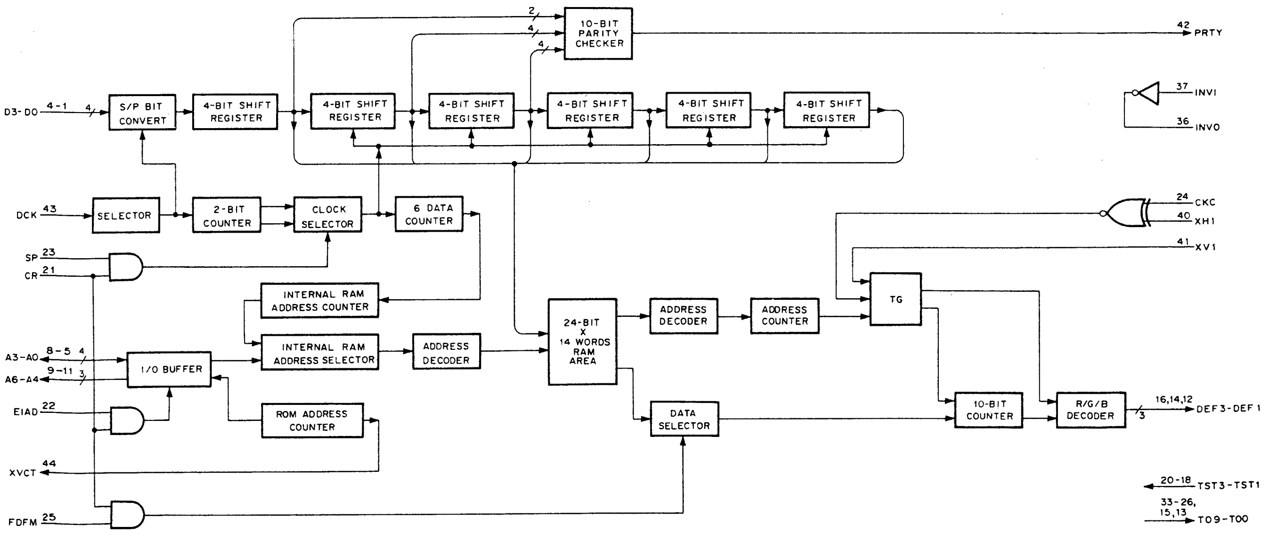
– TOP VIEW –

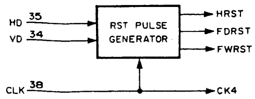

33 32 31 30 29 28 27 26 25 24 23
34
35
36
37
38
39
40
41
42
43
44
VDD (+5V)
GND
INDEX
22
21
20
19
18
17
16
15
14
13
12
1 2 3 4 5 6 7 8 9 10 11


4 D3
3 D2
2 D1
1 D0
21 CR
23 SP
43 DCK
22 EIAD
35 HD
34 VD
25 FDFM
24 CKC
40 XH1
41 XV1
38 CLK
37 INVI
A6 11
A5 10
A4 9
A3 8
A2 5
A1 6
A0 7
PRTY 42
XVCT 44
DEF3 16
DEF2 14
DEF1 12
TO9 33
TO8 32
TO7 31
TO6 30
TO5 29
TO4 28
TO3 27
TO2 26
TO1 15
TO0 13
INVO 36
TST3 20
TST2 19
TST1 18

(VDD = + 5V)

PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL
1	I	D0	12	O	DEF1	23	I	SP	34	I	VD
2	I	D1	13	O	TO0	24	I	CKC	35	I	HD
3	I	D2	14	O	DEF2	25	I	FDFM	36	O	INVO
4	I	D3	15	O	TO1	26	O	TO2	37	I	INVI
5	I/O	A2	16	O	DEF3	27	O	TO3	38	I	CLK
6	I/O	A1	17	–	GND	28	O	TO4	39	–	VDD
7	I/O	A0	18	I	TST1	29	O	TO5	40	I	XH1
8	I/O	A3	19	I	TST2	30	O	TO6	41	I	XV1
9	O	A4	20	I	TST3	31	O	TO7	42	O	PRTY
10	O	A5	21	I	CR	32	O	TO8	43	I	DCK
11	O	A6	22	I	EIAD	33	O	TO9	44	O	XVCT


D3-D0 4-1 4
S/P BIT CONVERT
4-BIT SHIFT REGISTER
4-BIT SHIFT REGISTER
4-BIT SHIFT REGISTER
4-BIT SHIFT REGISTER
4-BIT SHIFT REGISTER
4-BIT SHIFT REGISTER
2
4
4
10-BIT PARITY CHECKER
42 PRTY
37 INVI
36 INVO
DCK 43
SELECTOR
2-BIT COUNTER
CLOCK SELECTOR
6 DATA COUNTER
24 CKC
40 XH1
41 XV1
SP 23
CR 21
INTERNAL RAM ADDRESS COUNTER
INTERNAL RAM ADDRESS SELECTOR
ADDRESS DECODER
24-BIT X 14 WORDS RAM AREA
ADDRESS DECODER
ADDRESS COUNTER
TG
A3-A0 8-5 4
A6-A4 9-11 3
I/O BUFFER
EIAD 22
ROM ADDRESS COUNTER
DATA SELECTOR
10-BIT COUNTER
R/G/B DECODER
16,14,12 3 DEF3-DEF1
XVCT 44
FDFM 25
20-18 TST3-TST1
33-26, 15,13 TO9-TO0


HD 35
VD 34
RST PULSE GENERATOR
HRST
FDRST
FWRST
CLK 38
CK4

INPUT

CKC ; XH1 ACTIVE EDGE DECISION
CLK ; SYSTEM CLOCK
CR ; DEFECT COMPENSATION DATA SELECT (H ; u-COM MODE, L ; NORMAL MODE)
D0 – D3 ; 4-BIT PARALLEL DATA
DCLK ; DATA INPUTS STROVE PULSE
EIAD ; H ; EXT ADDRESS, L ; INT ADDRESS
FDFM ; FRAME READ/FIELD READ SWITCH (H ; FIELD READ)
HD ; HORIZONTAL DRIVE
INVI ; INVERTER
SP ; INPUT DATA SERIAL/PARALLEL SWITCH (H ; SERIAL)
TST1 – TST3 ; TEST MODE SELECT
VD ; VERTICAL DRIVE
XH1 ; CLOCK FOR DEFECT CORRECTION
XV1 ; LINE COUNTER INPUT TERMINAL

OUTPUT

A4 – A6 ; DATA ADDRESS
DEF1 – DEF3 ; DEFECT COMPENSATION GATE PULSE (R. G. B-CH)
INVO ; INVERTER
PRTY ; 12-BIT DATA PARITY CHECK (H ; EVEN)
TO0 – TO9 ; TEST TERMINAL FOR INTERNAL DATA OUTPUTS
XVCT ; ROM POWER VOLTAGE CONTROL TERMINAL

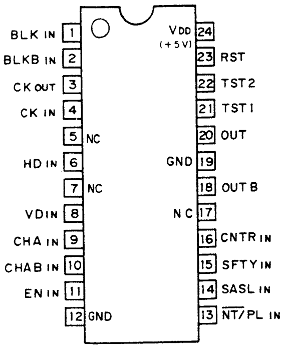
INPUT/OUTPUT

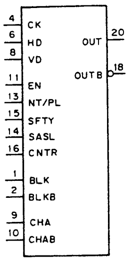
A0 – A3 ; DATA ADDRESS OUTPUTS (DATA ADDRESS INPUTS ; u-COM MODE)

CXD8154M (SONY)

C-MOS GATE ARRAY

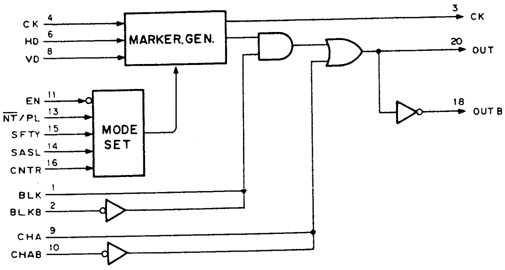
- TOP VIEW -


BLK IN 1
BLKB IN 2
CK OUT 3
CK IN 4
5 NC
HD IN 6
7 NC
VD IN 8
CHA IN 9
CHAB IN 10
EN IN 11
12 GND
VDD (+5V) 24
23 RST
22 TST2
21 TST1
20 OUT
GND 19
18 OUT B
NC 17
16 CNTR IN
15 SFTY IN
14 SASL IN
13 $\overline{NT}$/PL IN


4 CK
6 HD
8 VD
11 EN
13 NT/PL
15 SFTY
14 SASL
16 CNTR
1 BLK
2 BLKB
9 CHA
10 CHAB
OUT 20
OUTB 18

INPUT
BLK ; BLKG IN
BLKB ; $\overline{BLKG}$ IN
CHA ; CHR IN
CHAB ; $\overline{CHR}$ IN
CK ; CLOCK IN
CNTR ; CENTER $\overline{ON}$/OFF
EN ; ENABLE IN
HD ; HORIZONTAL DRIVE IN
$\overline{NT}$/PL ; NTSC/PAL
RST ; RESET
SASL ; SAFETY $\overline{80}$/90
SFTY ; SAFETY $\overline{ON}$/OFF
VD ; VERTICAL DRIVE IN
TST1 ; TEST 1
TST2 ; TEST 2

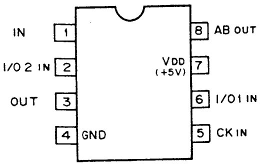
OUTPUT
OUT ; OUTPUT
OUTB ; $\overline{OUTPUT}$
CKO ; CLOCK OUT

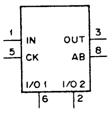

CK 4
HD 6
VD 8
MARKER.GEN.
3 CK
20 OUT
18 OUT B
EN 11
$\overline{NT}$/PL 13
SFTY 15
SASL 14
CNTR 16
MODE SET
BLK 1
BLKB 2
CHA 9
CHAB 10

CXL5504M (SONY)

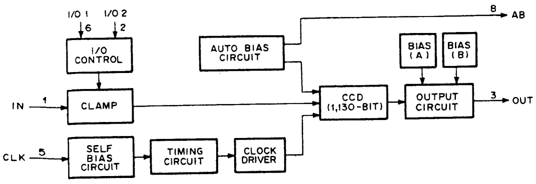
C-MOS CCD 1H DELAY LINE

- TOP VIEW -


IN 1
I/O 2 IN 2
OUT 3
4 GND
8 AB OUT
VDD (+5V) 7
6 I/O1 IN
5 CK IN


1 IN
5 CK
OUT 3
AB 8
I/O 1 6
I/O 2 2

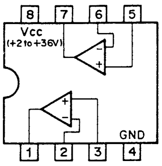
AB ; AUTO BIAS DC OUTPUT
CK ; CLOCK INPUT
IN ; SIGNAL INPUT
I/O1, I/O2 ; I/O CONTROL 1,2 INPUTS
OUT ; SIGNAL OUTPUT


I/O 1 6
I/O 2 2
I/O CONTROL
AUTO BIAS CIRCUIT
BIAS (A)
BIAS (B)
8 AB
IN 1
CLAMP
CCD (1,130-BIT)
OUTPUT CIRCUIT
3 OUT
CLK 5
SELF BIAS CIRCUIT
TIMING CIRCUIT
CLOCK DRIVER

LM2903M (RAYTHEON) FLAT PACKAGE

DUAL VOLTAGE COMPARATORS

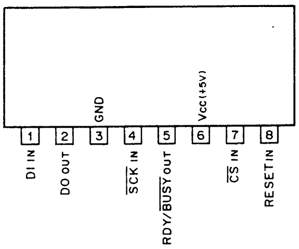
- TOP VIEW -

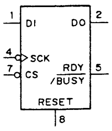

8
7
6
5
Vcc (+2 to +36V)
GND
1
2
3
4

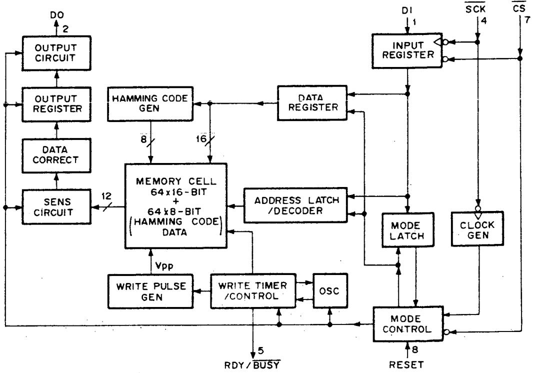
M6M80011L (MITSUBISHI)

1k (64x16)-BIT ERASABLE PROM

- SIDE VIEW -


GND
Vcc(+5V)
1 DI IN
2 DO OUT
3
4 $\overline{SCK}$ IN
5 RDY/$\overline{BUSY}$ OUT
6
7 $\overline{CS}$ IN
8 RESET IN

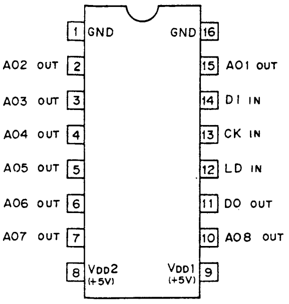

1 DI
DO 2
4 SCK
7 CS
RDY /BUSY 5
RESET 8

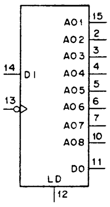

DO 2
OUTPUT CIRCUIT
OUTPUT REGISTER
DATA CORRECT
SENS CIRCUIT
HAMMING CODE GEN
8
16
12
MEMORY CELL 64x16-BIT + 64x8-BIT (HAMMING CODE) DATA
Vpp
WRITE PULSE GEN
WRITE TIMER /CONTROL
OSC
DATA REGISTER
ADDRESS LATCH /DECODER
DI 1
$\overline{SCK}$ 4
$\overline{CS}$ 7
INPUT REGISTER
MODE LATCH
CLOCK GEN
MODE CONTROL
5 RDY/$\overline{BUSY}$
8 RESET

CS ; CHIP SELECT INPUT
DI ; DATA INPUT
DO ; DATA OUTPUT
RDY/$\overline{BUSY}$; BUSY OUTPUT
RESET ; RESET INPUT
SCK ; CLOCK INPUT

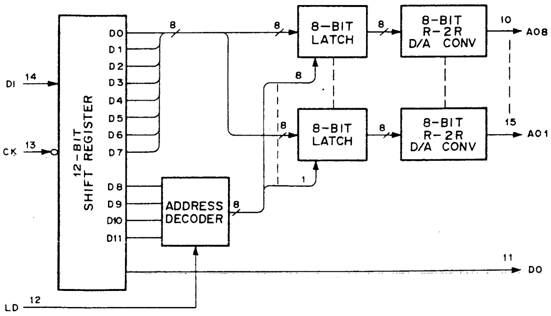
MB88342PF (FUJITSU) FLAT PACKAGE

C-MOS 8-BIT D/A CONVERTER
- TOP VIEW -


1 GND
GND 16
A02 OUT 2
15 A01 OUT
A03 OUT 3
14 DI IN
A04 OUT 4
13 CK IN
A05 OUT 5
12 LD IN
A06 OUT 6
11 DO OUT
A07 OUT 7
10 A08 OUT
8 VDD2 (+5V)
VDD1 (+5V) 9

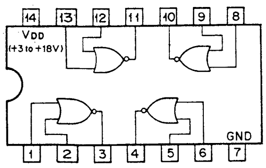

DI
A01
A02
A03
A04
A05
A06
A07
A08
DO
LD
14
13
15
2
3
4
5
6
7
10
11
12

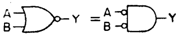
AO1 – AO8	: 8-BIT D/A OUTPUTS
CK	: CLOCK INPUT
DI	: SERIAL DATA INPUT
DO	: DATA OUTPUT
LD	: DATA LOAD CONTROL INPUT (H : LOAD)


DI 14
CK 13
12-BIT SHIFT REGISTER
D0
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
8
8-BIT LATCH
8-BIT R-2R D/A CONV
10
A08
15
A01
ADDRESS DECODER
11
DO
LD 12

MC14001BF (MOTOROLA) FLAT PACKAGE

C-MOS 2-INPUT NOR GATE
- TOP VIEW -


14
13
12
11
10
9
8
VDD (+3to+18V)
GND
1
2
3
4
5
6
7



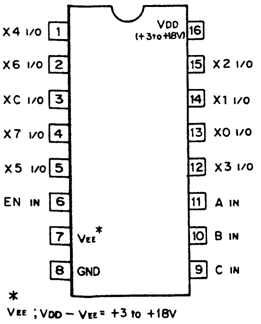
$Y = \overline{A+B} = \bar{A} \cdot \bar{B}$

A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0

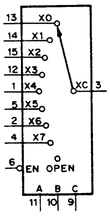
0 ; LOW LEVEL
1 ; HIGH LEVEL

MC14051BF (MOTOROLA) FLAT PACKAGE

C-MOS 8-CHANNEL ANALOG MULTIPLEXER/DEMULTIPLEXER
- TOP VIEW -


X4 I/O 1
X6 I/O 2
XC I/O 3
X7 I/O 4
X5 I/O 5
EN IN 6
7 VEE*
8 GND
VDD (+3to+18V) 16
15 X2 I/O
14 X1 I/O
13 X0 I/O
12 X3 I/O
11 A IN
10 B IN
9 C IN

*
VEE ; VDD – VEE = +3 to +18V


13 X0
14 X1
15 X2
12 X3
1 X4
5 X5
2 X6
4 X7
XC 3
6 EN OPEN
A B C
11 10 9

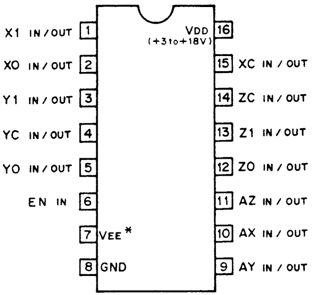
CONTROL INPUTS				SELECTED CHANNEL
EN	SELECT			
	C	B	A	
0	0	0	0	X0
0	0	0	1	X1
0	0	1	0	X2
0	0	1	1	X3
0	1	0	0	X4
0	1	0	1	X5
0	1	1	0	X6
0	1	1	1	X7
1	X	X	X	OPEN

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE

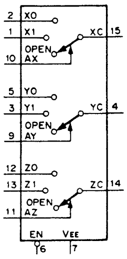
X0 to X7;	ANALOG INPUTS/OUTPUTS
XC;	COMMON INPUT/OUTPUT
A,B,C;	CHANNEL SELECT INPUT
EN;	ENABLE INPUT

MC14053BF (MOTOROLA) FLAT PACKAGE

C-MOS TRIPLE 2-CHANNEL ANALOG MULTIPLEXER/DEMULTIPLEXER
- TOP VIEW -


X1 IN/OUT 1
X0 IN/OUT 2
Y1 IN/OUT 3
YC IN/OUT 4
Y0 IN/OUT 5
EN IN 6
7 VEE*
8 GND
VDD (+3to+18V) 16
15 XC IN/OUT
14 ZC IN/OUT
13 Z1 IN/OUT
12 Z0 IN/OUT
11 AZ IN/OUT
10 AX IN/OUT
9 AY IN/OUT

VEE* ; VDD – VEE = + 3 to + 18 V

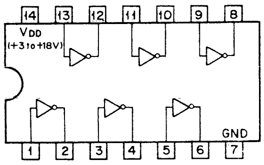

2 X0
1 X1
XC 15
10 OPEN AX
5 Y0
3 Y1
YC 4
9 OPEN AY
12 Z0
13 Z1
ZC 14
11 OPEN AZ
EN VEE
6 7

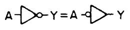
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE.

CONT. INPUTS		ON CHANNEL
EN	A (X,Y,Z,)	
0	0	0
0	1	1
1	X	OPEN

MC14069UBF (MOTOROLA)
TC4069UBF (TOSHIBA) FLAT PACKAGE

C-MOS INVERTER
- TOP VIEW -


14
13
12
11
10
9
8
VDD (+3to+18V)
GND
1
2
3
4
5
6
7



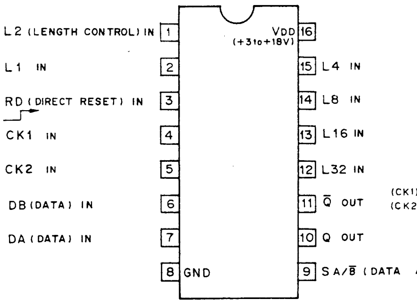
$Y = \bar{A}$

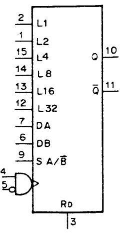
A	Y
0	1
1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

MC14557BF (MOTOROLA) FLAT PACKAGE

C-MOS 1-TO-64-BIT VARIABLE LENGTH SHIFT REGISTER
- TOP VIEW -


L2 (LENGTH CONTROL) IN 1
L1 IN 2
RD (DIRECT RESET) IN 3
CK1 IN 4
CK2 IN 5
DB (DATA) IN 6
DA (DATA) IN 7
8 GND
VDD (+3to+18V) 16
15 L4 IN
14 L8 IN
13 L16 IN
12 L32 IN
11 Q̄ OUT
10 Q OUT
9 SA/B̄ (DATA A OR B SELECT) IN


2 L1
1 L2
15 L4
14 L8
13 L16
12 L32
7 DA
6 DB
9 SA/B̄
(CK1) 4
(CK2) 5
RD
3
Q 10
Q̄ 11

LENGTH SELECT TRUTH TABLE

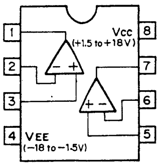
L32	L16	L8	L4	L2	L1	REGISTER LENGTH
0	0	0	0	0	0	1 - BIT
0	0	0	0	0	1	2 - BIT
0	0	0	0	1	0	3 - BIT
0	0	0	0	1	1	4 - BIT
0	0	0	1	0	0	5 - BIT
⋮	⋮	⋮	⋮	⋮	⋮	⋮
1	1	1	1	0	0	61 - BIT
1	1	1	1	0	1	62 - BIT
1	1	1	1	1	0	63 - BIT
1	1	1	1	1	1	64 - BIT

INPUTS				OUTPUT
RD	SA/B̄	CK1	CK2	Q
0	0	↑	0	DB
0	1	↑	0	DA
0	0	1	↓	DB
0	1	1	↓	DA
1	X	X	X	0

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

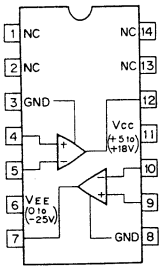
NJM062M (JRC) FLAT PACKAGE
TL062CPS (TI) FLAT PACKAGE

OPERATIONAL AMPLIFIER
(JFET INPUT)
- TOP VIEW -


1
2
3
4
VEE
(−18 to −1.5V)
Vcc
(+1.5 to +18V)
8
7
6
5
− +
+ −

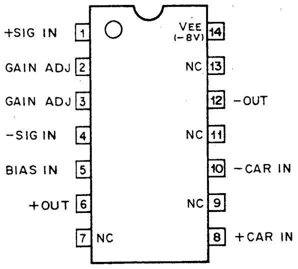
NJM319M (JRC) FLAT PACKAGE

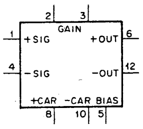
DUAL VOLTAGE COMPARATOR
- TOP VIEW -


1 NC
2 NC
3 GND
4
5
6 VEE (0 to −25V)
7
NC 14
NC 13
12
Vcc (+5 to +18V) 11
10
9
GND 8

RC1496M (RAYTHEON) FLAT PACKAGE

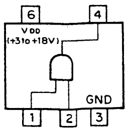
BALANCED MODULATOR/DEMODULATOR
- TOP VIEW -

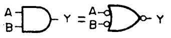

+SIG IN 1
GAIN ADJ 2
GAIN ADJ 3
−SIG IN 4
BIAS IN 5
+OUT 6
7 NC
VEE (−8V) 14
NC 13
12 −OUT
NC 11
10 −CAR IN
NC 9
8 +CAR IN


2
3
GAIN
1
+SIG
+OUT
6
4
−SIG
−OUT
12
+CAR
−CAR
BIAS
8
10
5

SC14S81F (MOTOROLA) FLAT PACKAGE
TC4S81F (TOSHIBA) FLAT PACKAGE

C-MOS 2-INPUT AND GATE
- TOP VIEW -


6
4
VDD
(+3 to +18V)
GND
1
2
3



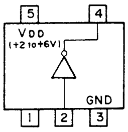
$Y = A \cdot B = \overline{\overline{A} + \overline{B}}$

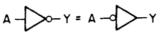
A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

0:LOW LEVEL
1:HIGH LEVEL

SC7SU04F (MOTOROLA) FLAT PACKAGE

C-MOS INVERTER
- TOP VIEW -


5
4
VDD
(+2 to +6V)
GND
1
2
3



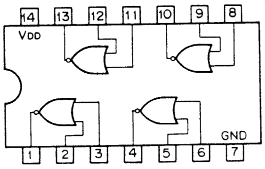
$Y = \overline{A}$

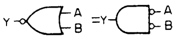
A	Y
0	1
1	0

0; LOW LEVEL
1; HIGH LEVEL

SN74HC02NS (TI) FLAT PACKAGE

C-MOS QUAD 2-INPUT NOR GATE
- TOP VIEW -


14
13
12
11
10
9
8
VDD
GND
1
2
3
4
5
6
7



$Y = \overline{A + B} = \overline{A} \cdot \overline{B}$

A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0

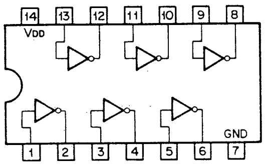
0:LOW LEVEL
1:HIGH LEVEL

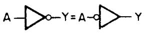
NOTE :

TYPE	VDD
TC74AC02F	+2 to +5.5V
OTHER TYPES	+2 to +6V

SN74HC04NS (TI) FLAT PACKAGE
TC74AC04F (TOSHIBA) FLAT PACKAGE

C-MOS HEX INVERTER
- TOP VIEW -


14
13
12
11
10
9
8
VDD
GND
1
2
3
4
5
6
7



$Y = \overline{A}$

A	Y
0	1
1	0

0:LOW LEVEL
1:HIGH LEVEL

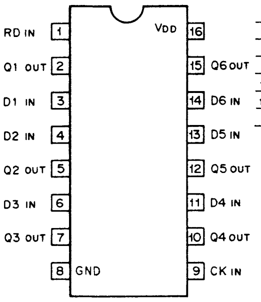
NOTE :

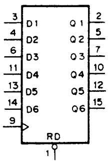
TYPE	VDD
74ACT04 TYPES 74HCT04 TYPES	+5V
TC74AC04F	+2 to +5.5V
TC74ACT04F	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

SN74HC174NS (TI) FLAT PACKAGE

C-MOS D-TYPE FLIP-FLOP WITH RESET

- TOP VIEW -

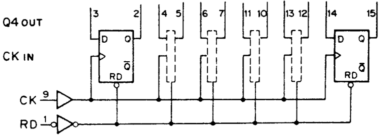

RD IN 1
Q1 OUT 2
D1 IN 3
D2 IN 4
Q2 OUT 5
D3 IN 6
Q3 OUT 7
8 GND
VDD 16
15 Q6 OUT
14 D6 IN
13 D5 IN
12 Q5 OUT
11 D4 IN
10 Q4 OUT
9 CK IN


3 D1 Q1 2
4 D2 Q2 5
6 D3 Q3 7
11 D4 Q4 10
13 D5 Q5 12
14 D6 Q6 15
9
RD
1

EACH FLIP - FLOP

INPUT			OUT
RD	CK	D	Q
0	X	X	0
1	↑	0	0
1	↑	1	1
1	0	X	Qo

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE


D1 Q1 D2 Q2 D3 Q3 D4 Q4 D5 Q5 D6 Q6
3 2 4 5 6 7 11 10 13 12 14 15
D Q
RD Q̄
CK 9
RD 1

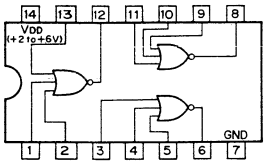
NOTE :

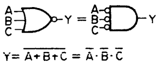
TYPE	VDD
74AC	+3.3 to +5V
74ACT	+5V
74HC	+2 to +6V
TC74AC174F	+2 to +5.5V

SN74HC27NS (TI) FLAT PACKAGE

C-MOS 3-LINE POSITIVE-NOR GATE

- TOP VIEW -


14 13 12 11 10 9 8
VDD
(+2 to +6V)
GND
1 2 3 4 5 6 7



$Y = \overline{A+B+C} = \bar{A} \cdot \bar{B} \cdot \bar{C}$

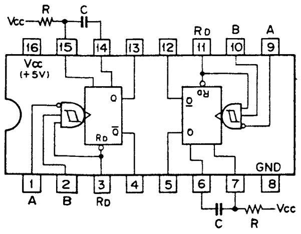
A	B	C	Y
0	0	0	1
0	0	1	0
0	1	0	0
0	1	1	0
1	0	0	0
1	0	1	0
1	1	0	0
1	1	1	0

0; LOW LEVEL
1; HIGH LEVEL

SN74LS221NS (TI) FLAT PACKAGE

TTL MONOSTABLE MULTIVIBRATOR WITH SCHMITT TRIGGER INPUT

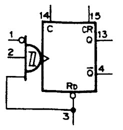
- TOP VIEW -

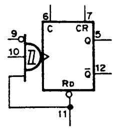

R C
Vcc
RD B A
16 15 14 13 12 11 10 9
Vcc
(+5V)
GND
1 2 3 4 5 6 7 8
A B RD
C R
Vcc

INPUTS			OUTPUTS	
RD	A	B	Q	Q̄
0	X	X	0	1
X	1	X	0	1
X	X	0	0	1
1	0	↑	⎍	⊔
1	↓	1	⎍	⊔
↑	0	1	⎍	⊔

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE

OUTPUT PULSE WIDTH = 0.7CR

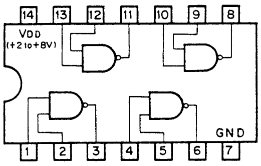

14 15
C CR 13
1 Q
2
Q̄ 4
RD
3

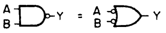

6 7
C CR 5
9 Q
10
Q̄ 12
RD
11

TC40H000F (TOSHIBA) FLAT PACKAGE

C-MOS 2-INPUT NAND GATE

- TOP VIEW -


14 13 12 11 10 9 8
VDD
(+2 to +8V)
GND
1 2 3 4 5 6 7



$Y = \overline{A \cdot B} = \bar{A} + \bar{B}$

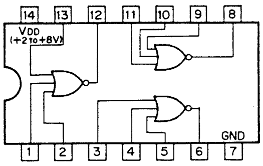
A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

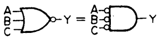
0; LOW LEVEL
1; HIGH LEVEL

TC40H027F (TOSHIBA) FLAT PACKAGE

C-MOS 3-INPUT POSITIVE-NOR GATE

- TOP VIEW -


14 13 12 11 10 9 8
VDD
(+2 to +8V)
GND
1 2 3 4 5 6 7



$Y = \overline{A+B+C} = \bar{A} \cdot \bar{B} \cdot \bar{C}$

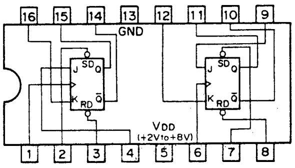
A	B	C	Y
0	0	0	1
0	0	1	0
0	1	0	0
0	1	1	0
1	0	0	0
1	0	1	0
1	1	0	0
1	1	1	0

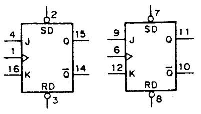
0; LOW LEVEL
1; HIGH LEVEL

TC40H076AF (TOSHIBA) FLAT PACKAGE

C-MOS HIGH SPEED EDGE TRIGGER TYPE J-K FLIP-FLOP WITH DIRECT SET/RESET

- TOP VIEW -


16 15 14 13 12 11 10 9
GND
J SD Q
K RD Q̄
VDD
(+2V to +8V)
1 2 3 4 5 6 7 8

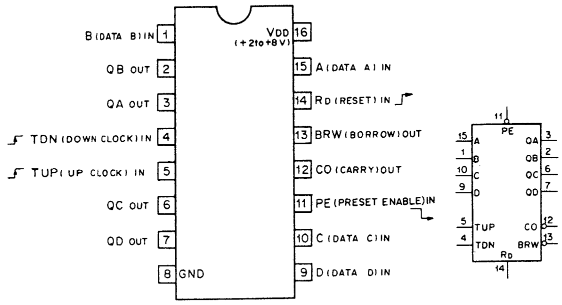

2
4 J SD Q 15
1
16 K RD Q̄ 14
3
7
9 J SD Q 11
6
12 K RD Q̄ 10
8

INPUTS					OUTPUTS	
RD	SD	CK	J	K	Q	Q̄
1	0	X	X	X	1	0
0	1	X	X	X	0	1
0	0	X	X	X	1	1
1	1	↓	0	0	NO CHANGE	
1	1	↓	1	0	1	0
1	1	↓	0	1	0	1
1	1	↓	1	1	TOGGLE	
1	1	↑	X	X	NO CHANGE	

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE

TC40H193F (TOSHIBA) FLAT PACKAGE

C-MOS PRESETTABLE SYNCHRONOUS 4-BIT UP/DOWN COUNTER
- TOP VIEW -


B (DATA B) IN 1
QB OUT 2
QA OUT 3
TDN (DOWN CLOCK) IN 4
TUP (UP CLOCK) IN 5
QC OUT 6
QD OUT 7
8 GND
VDD (+2 to +8V) 16
15 A (DATA A) IN
14 RD (RESET) IN
13 BRW (BORROW) OUT
12 CO (CARRY) OUT
11 PE (PRESET ENABLE) IN
10 C (DATA C) IN
9 D (DATA D) IN
11 PE
15 A
1 B
10 C
9 D
5 TUP
4 TDN
QA 3
QB 2
QC 6
QD 7
CO 12
BRW 13
RD 14

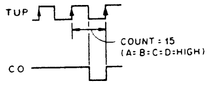
CONTROL INPUTS				MODE
RD	PE	TUP	TDN	
1	X	X	X	RESET TO ZERO
0	0	X	X	PRESET
0	1	↑	1	UP COUNT
0	1	1	↑	DOWN COUNT
0	1	1	1	NO COUNT

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE.

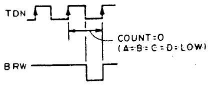
COUNT	OUTPUTS			
	QD	QC	QB	QA
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
10	1	0	1	0
11	1	0	1	1
12	1	1	0	0
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1

UP COUNT ↓
DOWN COUNT ↑

$CO = \overline{\overline{TUP} \cdot QA \cdot QB \cdot QC \cdot QD}$

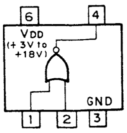

TUP
COUNT : 15
(A : B : C : D : HIGH)
CO

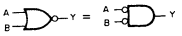
$BRW = \overline{\overline{TDN} \cdot \overline{QA} \cdot \overline{QB} \cdot \overline{QC} \cdot \overline{QD}}$


TDN
COUNT : 0
(A : B : C : D : LOW)
BRW

TC4S01F (TOSHIBA) FLAT PACKAGE

C-MOS 2-INPUT NOR GATE
- TOP VIEW -


6
4
VDD
(+3V to +18V)
GND
1
2
3



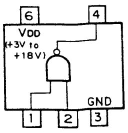
$Y = \overline{A + B} = \overline{A} \cdot \overline{B}$

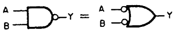
A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

TC4S11F (TOSHIBA) FLAT PACKAGE

C-MOS 2-INPUT NAND GATE
- TOP VIEW -


6
4
VDD
(+3V to +18V)
GND
1
2
3



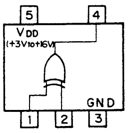
$Y = \overline{A \cdot B} = \overline{A} + \overline{B}$

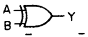
A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

TC4S30F (TOSHIBA) FLAT PACKAGE

C-MOS EXCLUSIVE OR GATE
- TOP VIEW -


5
4
VDD
(+3V to +16V)
GND
1
2
3



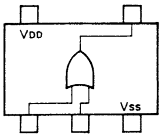
$Y = \overline{A} \cdot B + A \cdot \overline{B}$

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	0

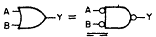
0; LOW LEVEL
1; HIGH LEVEL

TC4S71F (TOSHIBA) FLAT PACKAGE

C-MOS 2-INPUT OR GATE
- TOP VIEW -



(MINI MOLD PACKAGE)



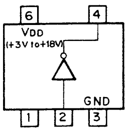
$Y = A + B = \overline{\overline{A} \cdot \overline{B}}$

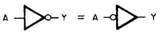
A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

0; LOW LEVEL
1; HIGH LEVEL

TC4SU69F (TOSHIBA) FLAT PACKAGE

C-MOS INVERTER BUFFER
- TOP VIEW -


6
4
VDD
(+3V to +18V)
GND
1
2
3



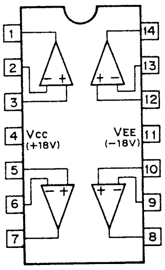
$Y = \overline{A}$

A	Y
0	1
1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

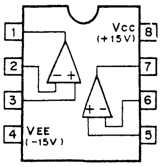
TL064CNS (TI) FLAT PACKAGE

OPERATIONAL AMPLIFIER
(J FET-INPUT)
- TOP VIEW -


1
2
3
4
5
6
7
8
9
10
11
12
13
14
Vcc (+18V)
VEE (−18V)
−
+

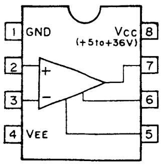
TL082CPS (TI) FLAT PACKAGE

OPERATIONAL AMPLIFIER
(J FET-INPUT)
- TOP VIEW -


1
2
3
4
Vcc
(+15V)
8
7
6
5
VEE
(-15V)

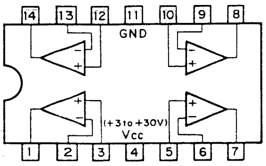
uPC311G2 (NEC) FLAT PACKAGE

VOLTAGE COMPARATOR
- TOP VIEW -


1 GND
2
3
4 VEE
Vcc
(+5to+36V)
8
7
6
5

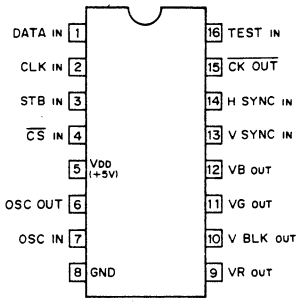
uPC324G2 (NEC) FLAT PACKAGE

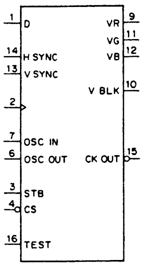
QUAD. OP AMPLIFIER
- TOP VIEW -


14
13
12
11
10
9
8
GND
(+3to+30V)
Vcc
1
2
3
4
5
6
7

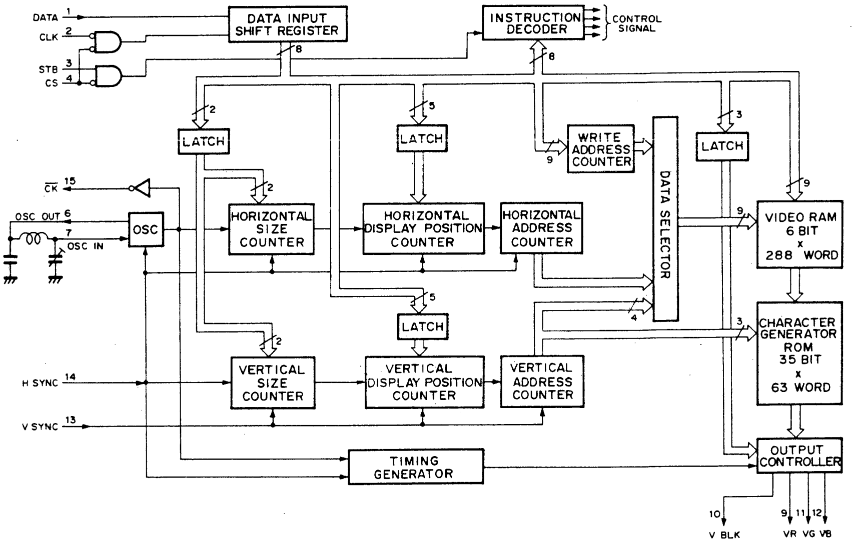
uPD6142G-101 (NEC) FLAT PACKAGE

C-MOS 8-BIT SERIALL INPUT CHARACTER DISPLAY
- TOP VIEW -

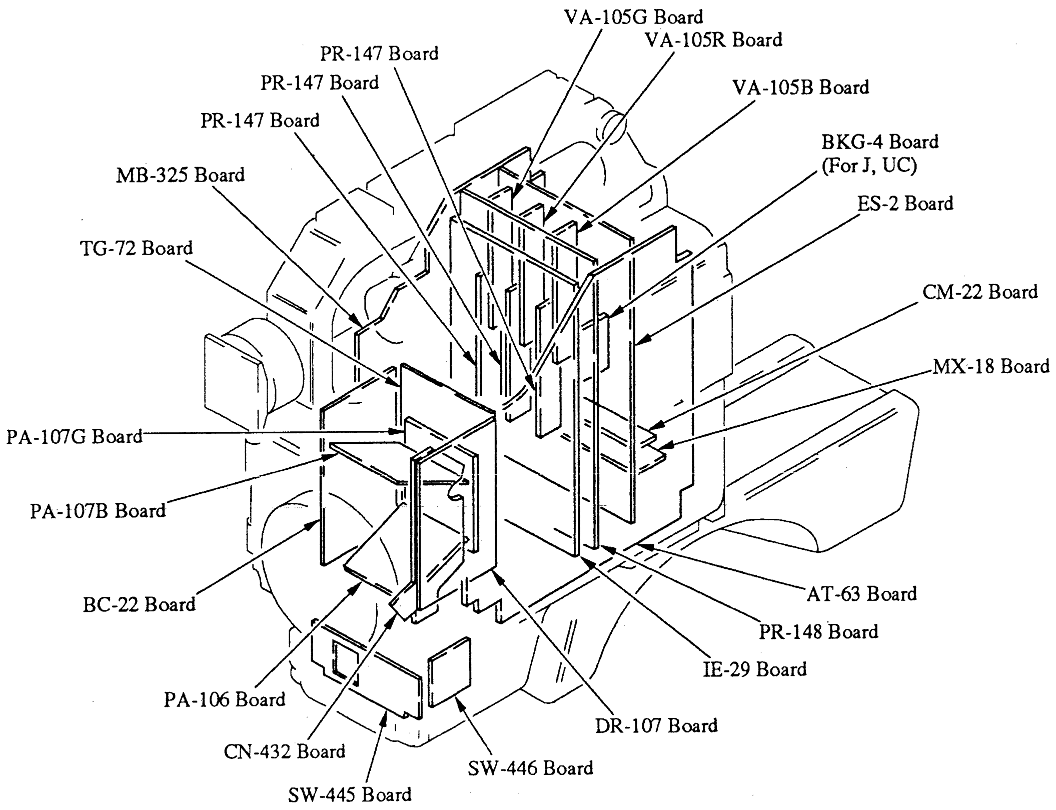

DATA IN 1
CLK IN 2
STB IN 3
CS IN 4
5 VDD (+5V)
OSC OUT 6
OSC IN 7
8 GND
16 TEST IN
15 CK OUT
14 H SYNC IN
13 V SYNC IN
12 VB OUT
11 VG OUT
10 V BLK OUT
9 VR OUT


1 D
14 H SYNC
13 V SYNC
2
7 OSC IN
6 OSC OUT
3 STB
4 CS
16 TEST
VR 9
VG 11
VB 12
V BLK 10
CK OUT 15

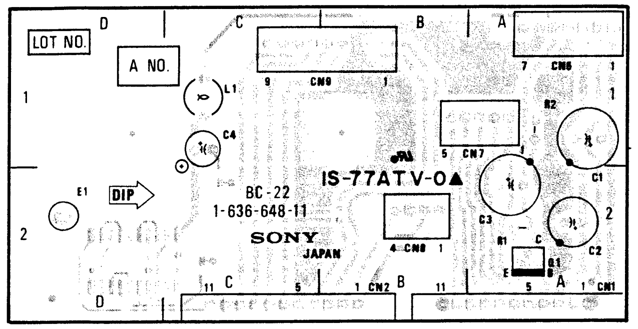
D; DATA INPUT
CK OUT; EQUAL TO OUTPUT OF OSC OUT
CLK; CLOCK INPUT
CS; CHIP SELECT INPUT
H SYNC; H SYNC INPUT
OSC IN, OUT; EXTERNAL TERMINAL FOR OSC
STB; STROBE INPUT
TEST; TEST CLOCK INPUT
VB; BLUE CHARACTER DATA OUTPUT
V BLK; V BLANKING OUTPUT
VG; GREEN CHARACTER DATA OUTPUT
VR; RED CHARACTER DATA OUTPUT
V SYNC; V SYNC INPUT


DATA 1
CLK 2
STB 3
CS 4
DATA INPUT SHIFT REGISTER
8
INSTRUCTION DECODER
8
CONTROL SIGNAL
2
LATCH
5
LATCH
3
LATCH
WRITE ADDRESS COUNTER
9
DATA SELECTOR
CK 15
OSC OUT 6
7
OSC IN
OSC
2
HORIZONTAL SIZE COUNTER
HORIZONTAL DISPLAY POSITION COUNTER
HORIZONTAL ADDRESS COUNTER
9
VIDEO RAM 6 BIT x 288 WORD
5
LATCH
4
3
CHARACTER GENERATOR ROM 35 BIT x 63 WORD
2
H SYNC 14
VERTICAL SIZE COUNTER
VERTICAL DISPLAY POSITION COUNTER
VERTICAL ADDRESS COUNTER
V SYNC 13
TIMING GENERATOR
OUTPUT CONTROLLER
10
V BLK
9 11 12
VR VG VB

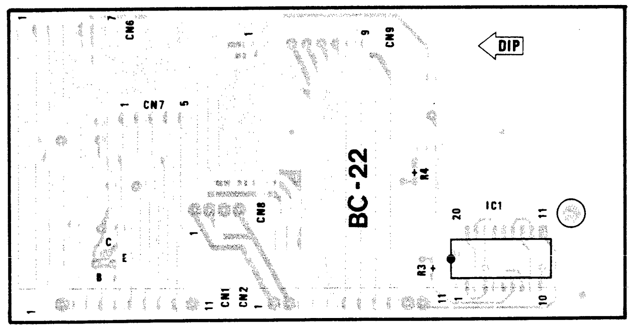
SECTION C
SCHEMATIC DIAGRAMS AND BOARD ILLUSTRATIONS


VA-105G Board
VA-105R Board
PR-147 Board
PR-147 Board
PR-147 Board
VA-105B Board
BKG-4 Board (For J, UC)
ES-2 Board
MB-325 Board
TG-72 Board
CM-22 Board
MX-18 Board
PA-107G Board
PA-107B Board
BC-22 Board
AT-63 Board
PR-148 Board
IE-29 Board
PA-106 Board
DR-107 Board
CN-432 Board
SW-446 Board
SW-445 Board

BC-22 BOARD


LOT NO.
A NO.
D
C
B
A
1
2
DIP
BC-22
1-636-648-11
IS-77ATV-0▲
SONY
JAPAN
CN9
CN6
CN7
CN8
CN2
CN1
L1
C4
C1
C2
C3
R1
R2
E1

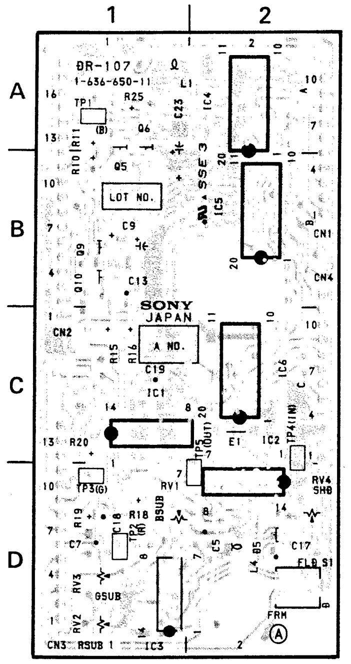
1-636-648-11 COMPONENT SIDE


DIP
BC-22
CN6
CN9
CN7
CN8
CN1
CN2
IC1
R3
R4

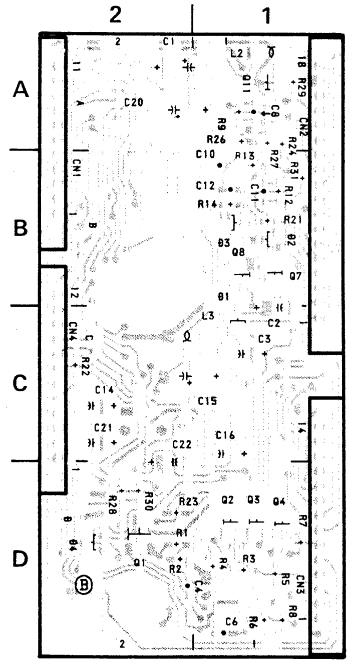
1-636-654-11 SOLDERING SIDE

TG-72 BOARD

TG-72 (1-636-652-11)	
CN1	A-1
CN2	C-1
CN3	A-2
CN4	C-2
CP1	A-2
IC1	B-2
IC2	A-1
IC3	B-1
IC4	C-1
IC5	B-2
IC6	C-2


1
2
A
B
C
D
DR-107
1-636-650-11
LOT NO.
A NO.
SONY
JAPAN
SSE 3
IC1
IC2
IC3
IC4
IC5
IC6
CN1
CN2
CN3
CN4
RV1
RV4
RSUB
FRM

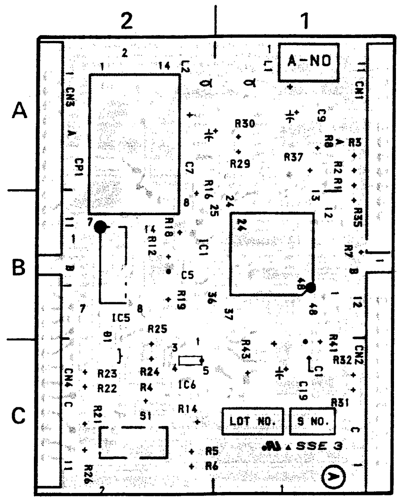
1-636-650-11 COMPONENT SIDE


2
1
A
B
C
D
CN1
CN2
CN3
CN4
C20
C14
C15
C16
C21
C22
Q1
Q2
Q3
Q4
Q7
Q8
L2
L3
R1
R2
R3

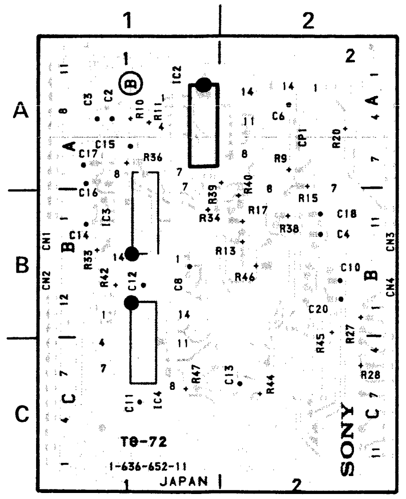
1-636-650-11 SOLDERING SIDE

DR-107 BOARD

DR-107 (1-636-650-11)	
CN1	B-2
CN2	A-1
CN3	D-1
CN4	C-2
D1	B-1
D2	B-1
D4	D-2
D5	D-2
IC1	C-1
IC2	C-2
IC3	D-1
IC4	A-2
IC5	B-2
IC6	C-2
Q1	D-2
Q2	D-1
Q3	D-1
Q4	D-1
Q5	B-1
Q6	A-1
Q7	B-1
Q8	B-1
Q9	B-1
Q10	B-1
Q11	A-1
RV1	D-1
RV2	D-1
RV3	D-1
RV4	D-2
S1	D-2
TP1	A-1
TP2	D-1
TP3	D-1
TP4	C-2
TP5	C-2


2
1
A
B
C
A-NO
LOT NO.
S NO.
SSE 3
CN1
CN2
CN3
CN4
CP1
IC1
IC5
IC6
S1

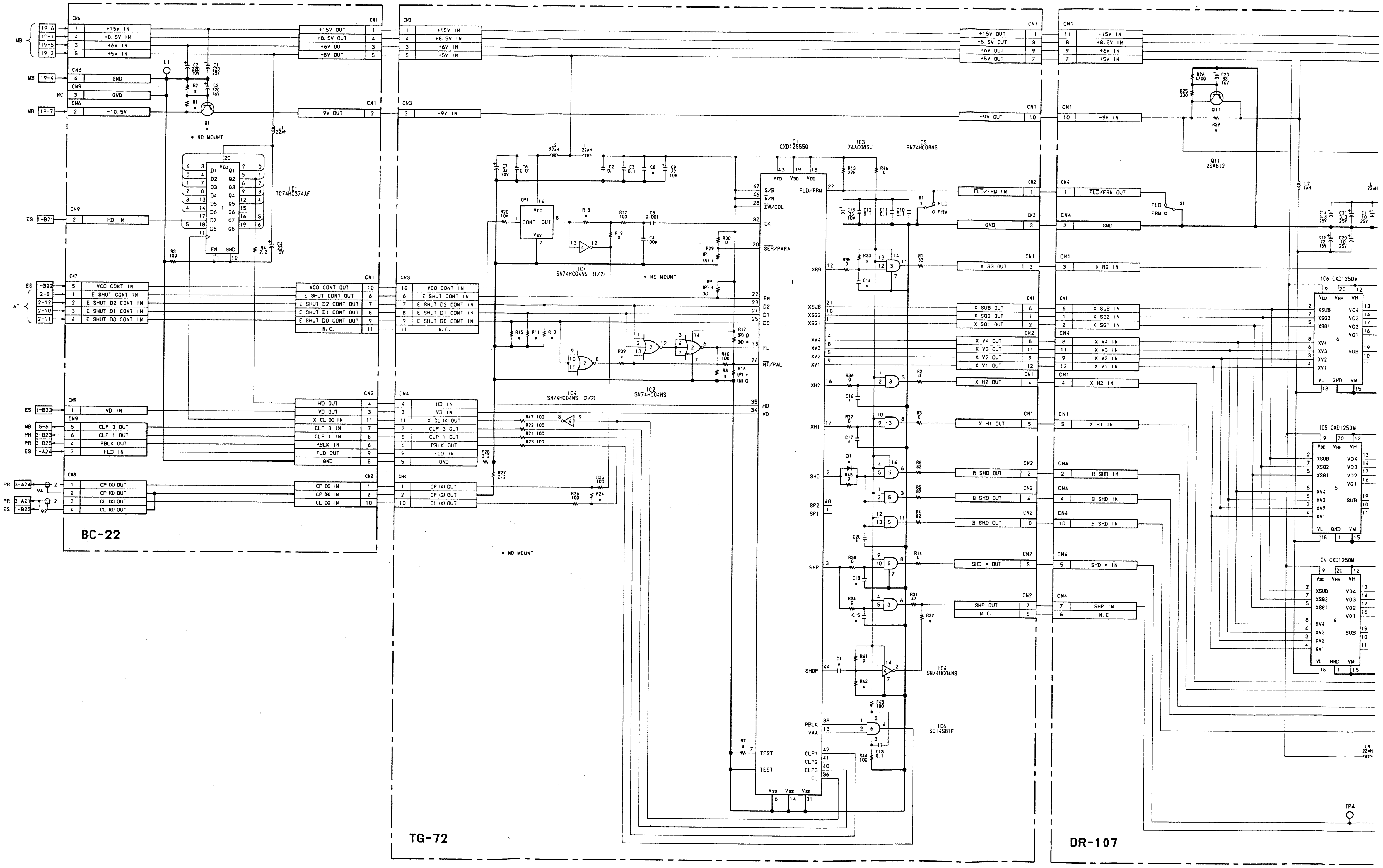
1-636-652-11 COMPONENT SIDE

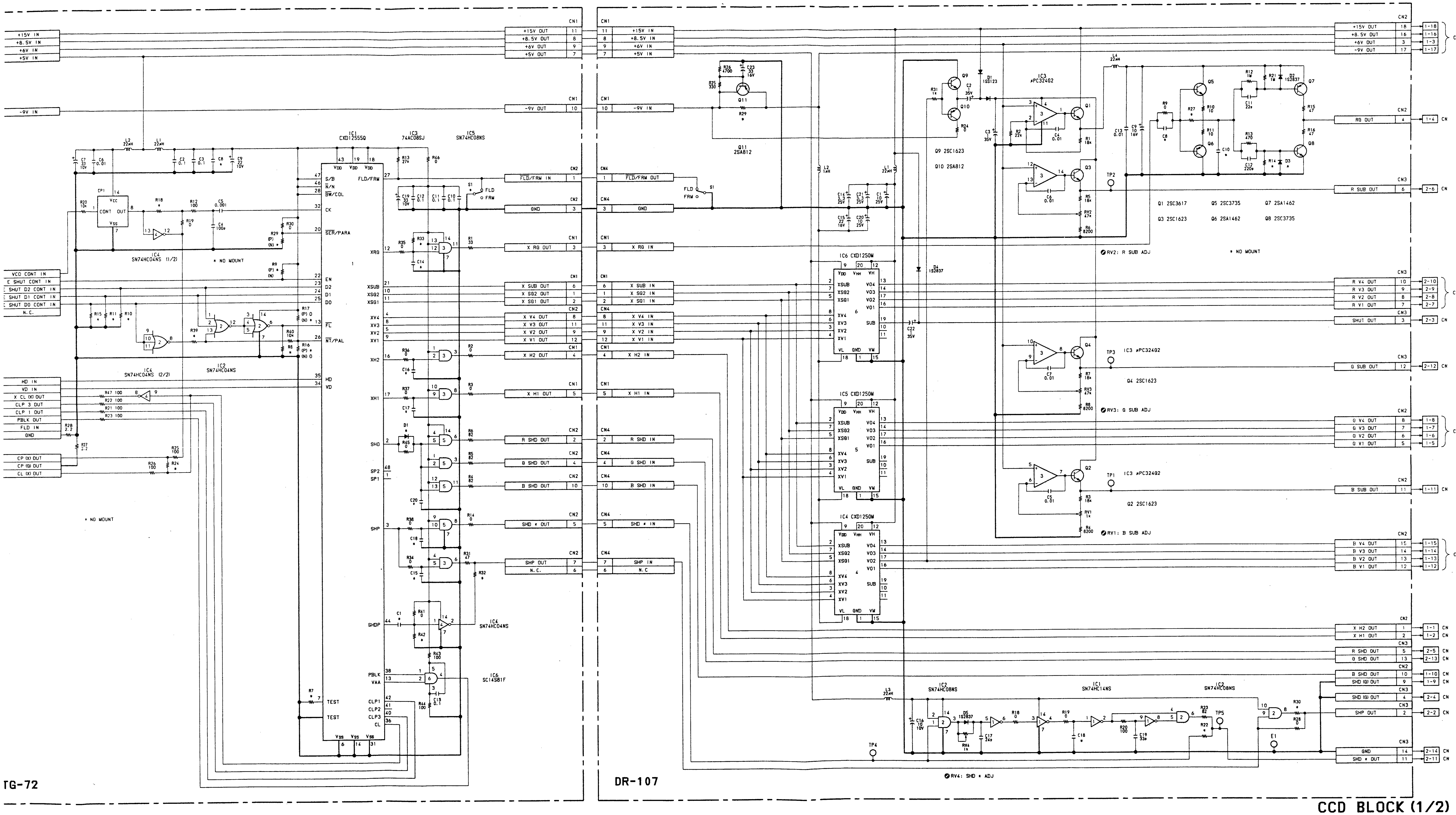

1
2
A
B
C
TG-72
1-636-652-11
JAPAN
SONY
CN1
CN2
CN3
CN4
CP1
IC2
IC3
IC4

1-636-652-11 SOLDERING SIDE

CCD BLOCK (1/2)

BC-22 BOARD
TG-72 BOARD
DR-107 BOARD


BC-22
TG-72
DR-107
CN6
CN9
CN7
CN8
CN1
CN2
CN3
CN4
MB
ES
AT
PR
NC
+15V IN
+8.5V IN
+6V IN
+5V IN
GND
-10.5V
+15V OUT
+8.5V OUT
+6V OUT
+5V OUT
-9V OUT
-9V IN
HD IN
VD IN
VCO CONT IN
E SHUT CONT IN
E SHUT D2 CONT IN
E SHUT D1 CONT IN
E SHUT D0 CONT IN
VCO CONT OUT
E SHUT CONT OUT
E SHUT D2 CONT OUT
E SHUT D1 CONT OUT
E SHUT D0 CONT OUT
N.C.
HD OUT
VD OUT
X CL (X) IN
X CL (X) OUT
CLP 3 OUT
CLP 3 IN
CLP 1 OUT
CLP 1 IN
PBLK OUT
PBLK IN
FLD OUT
FLD IN
CP (X) OUT
CP (X) IN
CP (G) OUT
CP (G) IN
CL (X) OUT
CL (X) IN
CL (G) OUT
E1
Q1
* NO MOUNT
IC1 TC74HC374AF
IC1 CXD1255Q
IC3 74AC08SJ
IC5 SN74HC08NS
IC4 SN74HC04NS (1/2)
IC4 SN74HC04NS (2/2)
IC2 SN74HC04NS
IC4 SN74HC04NS
IC6 SC14581F
CP1
CONT OUT
S/B
N/S
BW/COL
CK
SER/PARA
EN
D2
D1
D0
FL
NT/PAL
HD
VD
TEST
XRG
XSUB
XSG2
XSG1
XV4
XV3
XV2
XV1
XH2
XH1
SHD
SP2
SP1
SHP
SHDP
PBLK
VAA
CLP1
CLP2
CLP3
CL
FLD/FRM
S1
FLD
FRM
FLD/FRM IN
FLD/FRM OUT
X RG OUT
X RG IN
X SUB OUT
X SG2 OUT
X SG1 OUT
X SUB IN
X SG2 IN
X SG1 IN
X V4 OUT
X V3 OUT
X V2 OUT
X V1 OUT
X V4 IN
X V3 IN
X V2 IN
X V1 IN
X H2 OUT
X H2 IN
X H1 OUT
X H1 IN
R SHD OUT
R SHD IN
G SHD OUT
G SHD IN
B SHD OUT
B SHD IN
SHD * OUT
SHD * IN
SHP OUT
SHP IN
N.C
Q11
Q11 2SA812
IC6 CXD1250M
IC5 CXD1250M
IC4 CXD1250M
VDD
VHH
VH
VL
GND
VM
SUB
VO4
VO3
VO2
VO1
TP4
L1
L2
L3


TG-72
DR-107
IC1 CXD1255Q
IC3 74AC08SJ
IC5 SN74HC08NS
IC4 SN74HC04NS (1/2)
IC4 SN74HC04NS (2/2)
IC2 SN74HC04NS
IC6 SC14S81F
IC6 CXD1250M
IC5 CXD1250M
IC4 CXD1250M
IC3 μPC324G2
IC2 SN74HC08NS
IC1 SN74HC14NS
Q11 2SA812
Q9 2SC1623
Q10 2SA812
Q1 2SC3617
Q3 2SC1623
Q5 2SC3735
Q6 2SA1462
Q7 2SA1462
Q8 2SC3735
Q4 2SC1623
Q2 2SC1623
RV2: R SUB ADJ
RV3: G SUB ADJ
RV1: B SUB ADJ
RV4: SHD * ADJ
* NO MOUNT
+15V IN
+8.5V IN
+6V IN
+5V IN
-9V IN
+15V OUT
+8.5V OUT
+6V OUT
-9V OUT
FLD/FRM IN
FLD/FRM OUT
GND
X RG OUT
X RG IN
X SUB OUT
X SG2 OUT
X SG1 OUT
X V4 OUT
X V3 OUT
X V2 OUT
X V1 OUT
X H2 OUT
X H1 OUT
R SHD OUT
G SHD OUT
B SHD OUT
SHD * OUT
SHP OUT
N.C.
RG OUT
R SUB OUT
R V4 OUT
R V3 OUT
R V2 OUT
R V1 OUT
SHUT OUT
G SUB OUT
G V4 OUT
G V3 OUT
G V2 OUT
G V1 OUT
B SUB OUT
B V4 OUT
B V3 OUT
B V2 OUT
B V1 OUT
SHD (G) OUT
SHD (B) OUT
VCO CONT IN
E SHUT CONT IN
E SHUT D2 CONT IN
E SHUT D1 CONT IN
E SHUT D0 CONT IN
HD IN
VD IN
X CL (X) OUT
CLP 3 OUT
CLP 1 OUT
PBLK OUT
FLD IN
CP (R) OUT
CP (G) OUT
CL (X) OUT
CN1
CN2
CN3
CN4
TP1
TP2
TP3
TP4
TP5
E1

CCD BLOCK (1/2)

BC-22 BOARD
TG-72 BOARD
DR-107 BOARD

DXC-327 (J, UC)
DXC-327P (EK)

* NO MOUNT

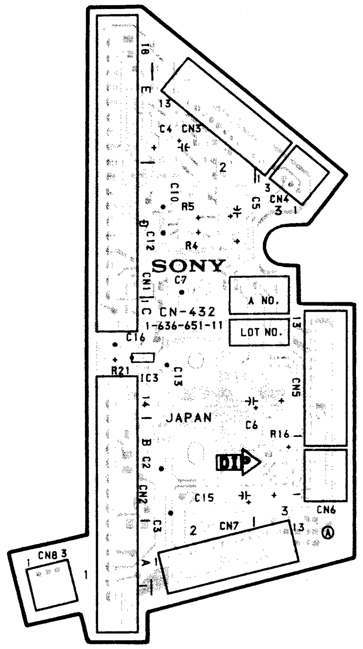
C-6 C-7

D E F G H I

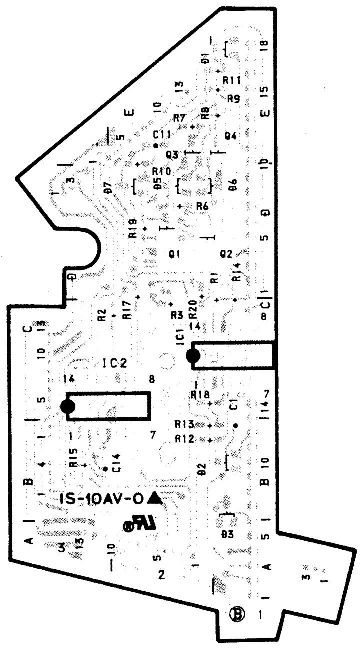
1 2 3 4 5 6

B-DXC327-CCDBLOCK/M#1

CN-432 BOARD

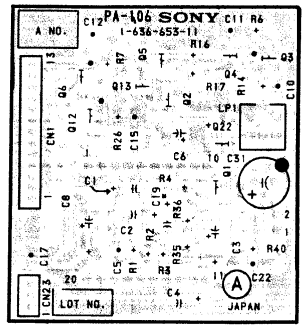

SONY
CN-432
1-636-651-11
A NO.
LOT NO.
JAPAN
CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN8
IC3

1-636-651-11 COMPONENT SIDE

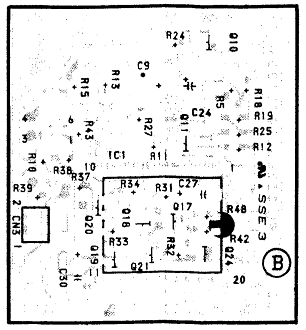

IC1
IC2
IS-10AV-O

1-636-651-11 SOLDERING SIDE

PA-106 BOARD

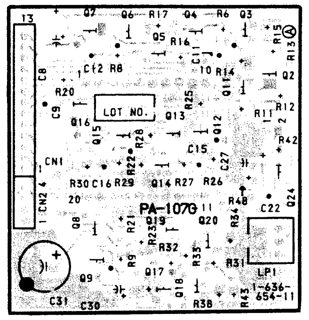

PA-106 SONY
1-636-653-11
A NO.
LOT NO.
JAPAN
CN1
CN2
LP1

1-636-653-11 COMPONENT SIDE

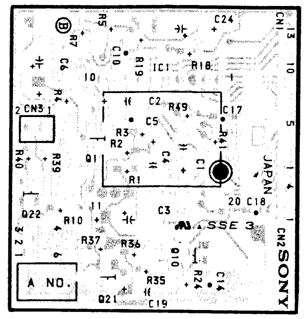

IC1
CN3
SSE 3

1-636-653-11 SOLDERING SIDE

PA-107G BOARD

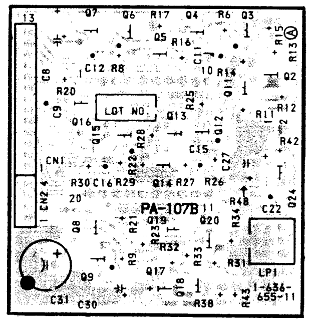

PA-107G
LOT NO.
CN1
CN2
LP1
1-636-654-11

1-636-654-11, 12 COMPONENT SIDE

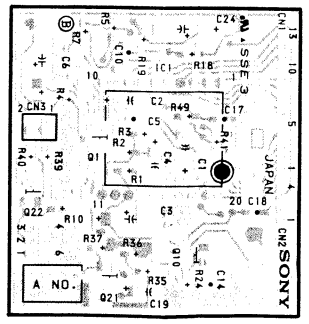

IC1
CN3
CN2
A NO.
SSE 3
JAPAN
SONY

1-636-654-11, 12 SOLDERING SIDE

PA-107B BOARD


PA-107B
LOT NO.
CN1
CN2
LP1
1-636-655-11

1-636-655-11, 12 COMPONENT SIDE

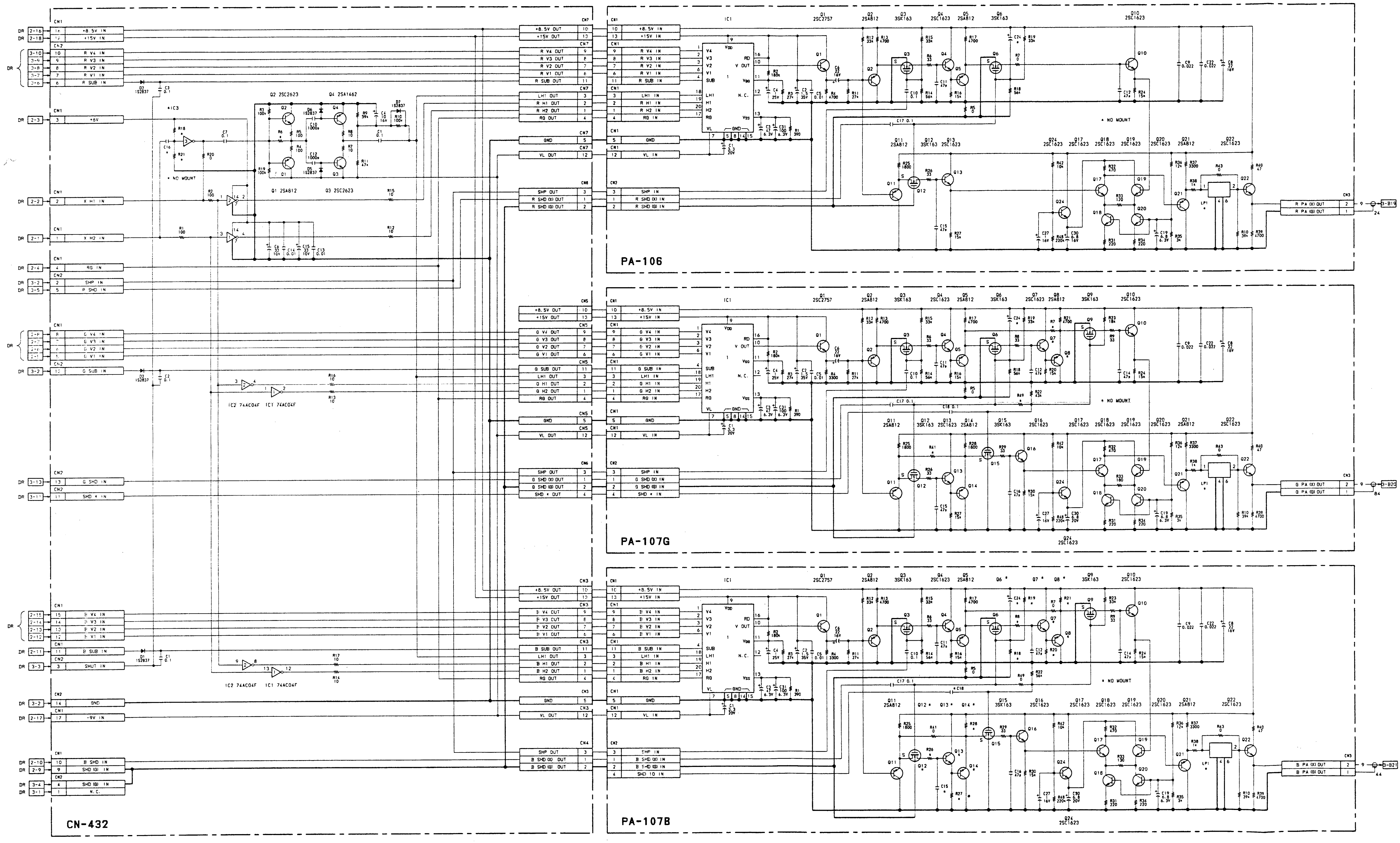

IC1
CN3
CN2
A NO.
SSE 3
JAPAN
SONY

1-636-655-11, 12 SOLDERING SIDE

CCD BLOCK (2/2)

CN-432 BOARD
PA-106 BOARD
PA-107G BOARD
PA-107B BOARD

1


CN-432
PA-106
PA-107G
PA-107B
IC1
Q1 2SC2757
Q2 2SA812
Q3 3SK163
Q4 2SC1623
Q5 2SA812
Q6 3SK163
Q10 2SC1623
Q2 2SC2623
Q4 2SA1462
Q1 2SA812
Q3 2SC2623
IC2 74AC04F
IC1 74AC04F
* NO MOUNT
+8.5V IN
+15V IN
R V4 IN
R V3 IN
R V2 IN
R V1 IN
R SUB IN
+5V
X H1 IN
X H2 IN
RG IN
SHP IN
P SHD IN
G V4 IN
G V3 IN
G V2 IN
G V1 IN
G SUB IN
G SHD IN
SHD + IN
B V4 IN
B V3 IN
B V2 IN
B V1 IN
B SUB IN
SHUT IN
GND
-9V IN
B SHD IN
SHD (0) IN
N.C.
R PA (X) OUT
G PA (X) OUT
B PA (X) OUT
VL OUT
VL IN
CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN8
LP1
DR
PR

2

3

4

5

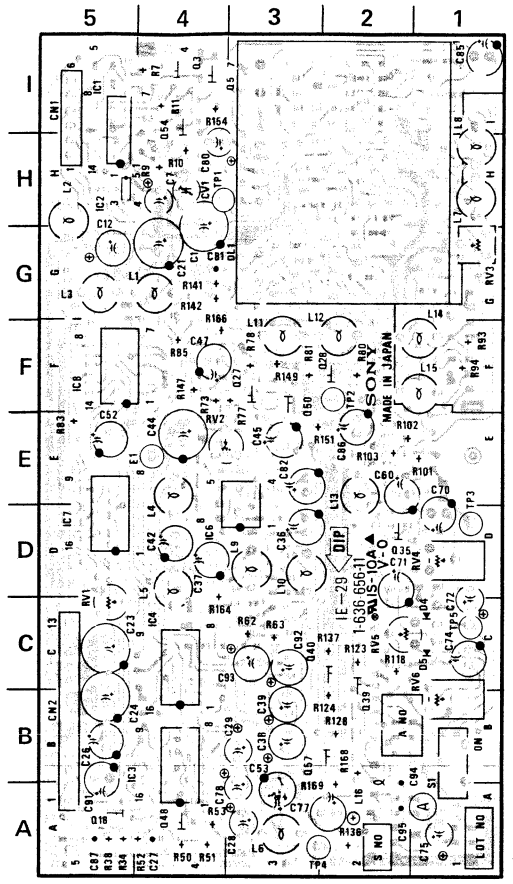
CCD BLOCK (2/2)
CN-432 BOARD
PA-107G BOARD
PA-106 BOARD
PA-107B BOARD
DXC-327 (J, UC)
DXC-327P (EK)

6

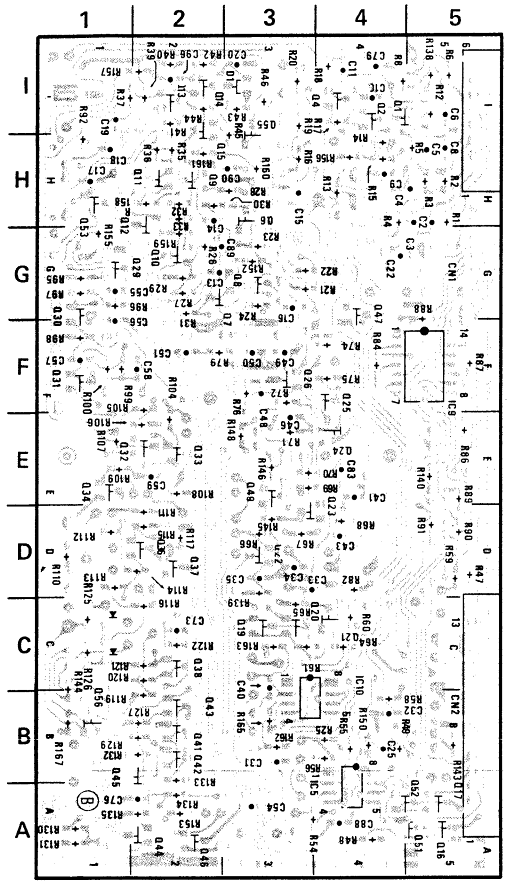
IE-29 BOARD

IE-29 (1-636-656-11)

CN1	G-5
CN2	B-5
DL1	G-3
D1	I-3
D4	C-1
D5	C-1
E1	E-5
IC1	I-5
IC2	G-5
IC3	B-5
IC4	C-4
IC5	A-4
IC6	D-4
IC7	D-5
IC8	F-5
IC9	F-5
IC10	C-4
Q1	I-4
Q2	I-4
Q3	I-4
Q4	I-4
Q5	I-3
Q6	H-3
Q7	G-3
Q8	G-3
Q9	H-2
Q10	G-2
Q11	H-2
Q12	H-1
Q13	I-2
Q14	I-2
Q15	H-2
Q16	A-5
Q17	A-5
Q18	A-5
Q19	C-3
Q21	C-4
Q22	D-3
Q23	D-4
Q24	E-4
Q25	F-4
Q26	F-3
Q27	F-3
Q28	F-2
Q29	G-2
Q30	G-1
Q31	F-1
Q32	E-1
Q33	E-2
Q34	E-1
Q35	D-2
Q36	D-2
Q37	D-2
Q38	C-2
Q39	B-2
Q40	C-3
Q41	B-2
Q42	B-2
Q43	B-2
Q44	A-2
Q45	B-1
Q46	A-2
Q48	A-4
Q49	E-3
Q50	F-3
Q51	A-5
Q52	A-5
Q53	H-1
Q54	I-4
Q55	I-3
Q56	B-1
Q57	B-3
RV1	C-5
RV2	E-4
RV3	G-1
RV4	D-1
RV5	C-2
RV6	C-1
S1	B-1
TP1	G-4
TP2	F-2
TP3	E-1
TP4	A-3
TP5	C-1



1-636-656-11 COMPONENT SIDE



1-636-656-11 SOLDERING SIDE

IE-29 (1-636-656-11)

CN1	G-5
CN2	B-5
DL1	G-3
D1	I-3
D4	C-1
D5	C-1
E1	E-5
IC1	I-5
IC2	G-5
IC3	B-5
IC4	C-4
IC5	A-4
IC6	D-4
IC7	D-5
IC8	F-5
IC9	F-5
IC10	C-4
Q1	I-4
Q2	I-4
Q3	I-4
Q4	I-4
Q5	I-3
Q6	H-3
Q7	G-3
Q8	G-3
Q9	H-2
Q10	G-2
Q11	H-2
Q12	H-1
Q13	I-2
Q14	I-2
Q15	H-2
Q16	A-5
Q17	A-5
Q18	A-5
Q19	C-3
Q21	C-4
Q22	D-3
Q23	D-4
Q24	E-4
Q25	F-4
Q26	F-3
Q27	F-3
Q28	F-2
Q29	G-2
Q30	G-1
Q31	F-1
Q32	E-1
Q33	E-2
Q34	E-1
Q35	D-2
Q36	D-2
Q37	D-2
Q38	C-2
Q39	B-2
Q40	C-3
Q41	B-2
Q42	B-2
Q43	B-2
Q44	A-2
Q45	B-1
Q46	A-2
Q48	A-4
Q49	E-3
Q50	F-3
Q51	A-5
Q52	A-5
Q53	H-1
Q54	I-4
Q55	I-3
Q56	B-1
Q57	B-3
RV1	C-5
RV2	E-4
RV3	G-1
RV4	D-1
RV5	C-2
RV6	C-1
S1	B-1
TP1	G-4
TP2	F-2
TP3	E-1
TP4	A-3
TP5	C-1

IE-29 BOARD

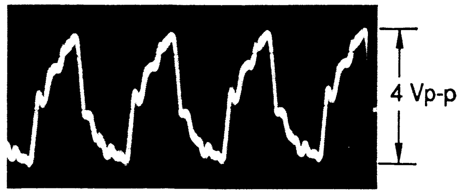
注意:

1. DC電圧はデジタル電圧計による値。
2. 波形写真、及びDC電圧は下記条件での測定。
   - グレースケールチャートを撮像し、波形モニターにて、ビデオ出力の白レベルが100 IREになる様にレンズ絞りをセットする。
   - GAIN : 0 dB
   - WHITE BAL : PRE
   - ABL : OFF
   - SHUTTER : OFF
   - ZEBRA : OFF
   - VF MARKER : OFF
   - PHASE : 0°
   - BARS : OFF

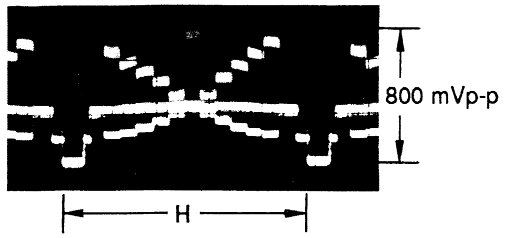
NOTE:

1. All voltage are DC, measured with a digital voltmeter.
2. All waveforms are taken and DC voltage is measured in condition below.
   - Shoot the grayscale chart. Adjust lens iris so that a white level is 100 IRE on the waveform monitor.
   - GAIN : 0 dB
   - WHITE BAL : PRE
   - ABL : OFF
   - SHUTTER : OFF
   - ZEBRA : OFF
   - VF MARKER : OFF
   - PHASE : 0°
   - BARS : OFF

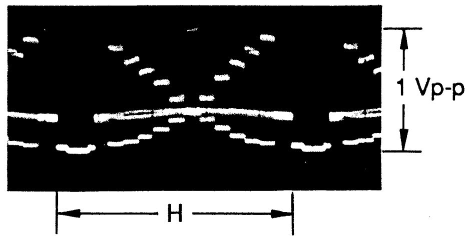
CN2-13 pin



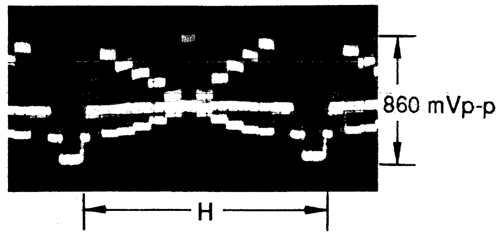
CN2-2 pin



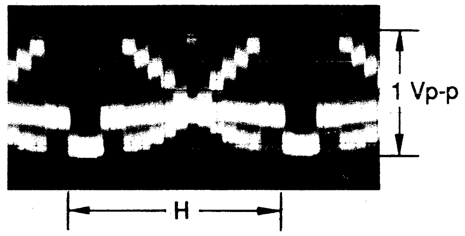
TP1



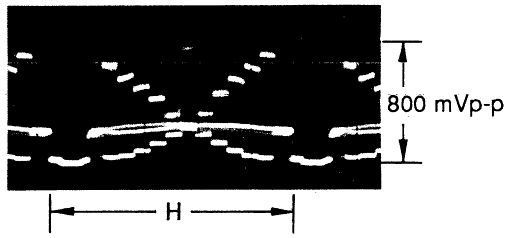
CN2-3 pin



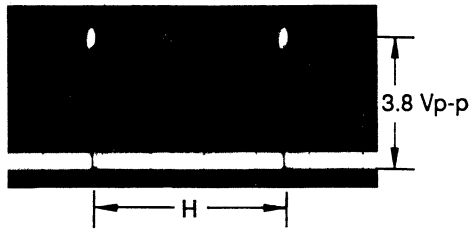
IC1-1 pin



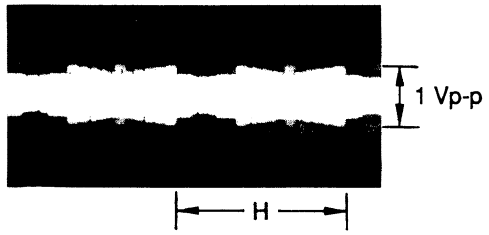
TP2



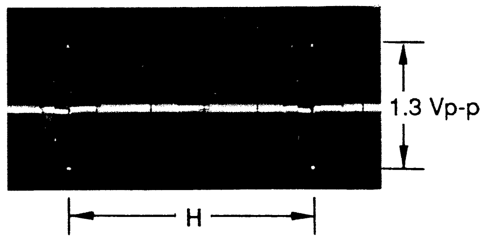
CN1-5 pin



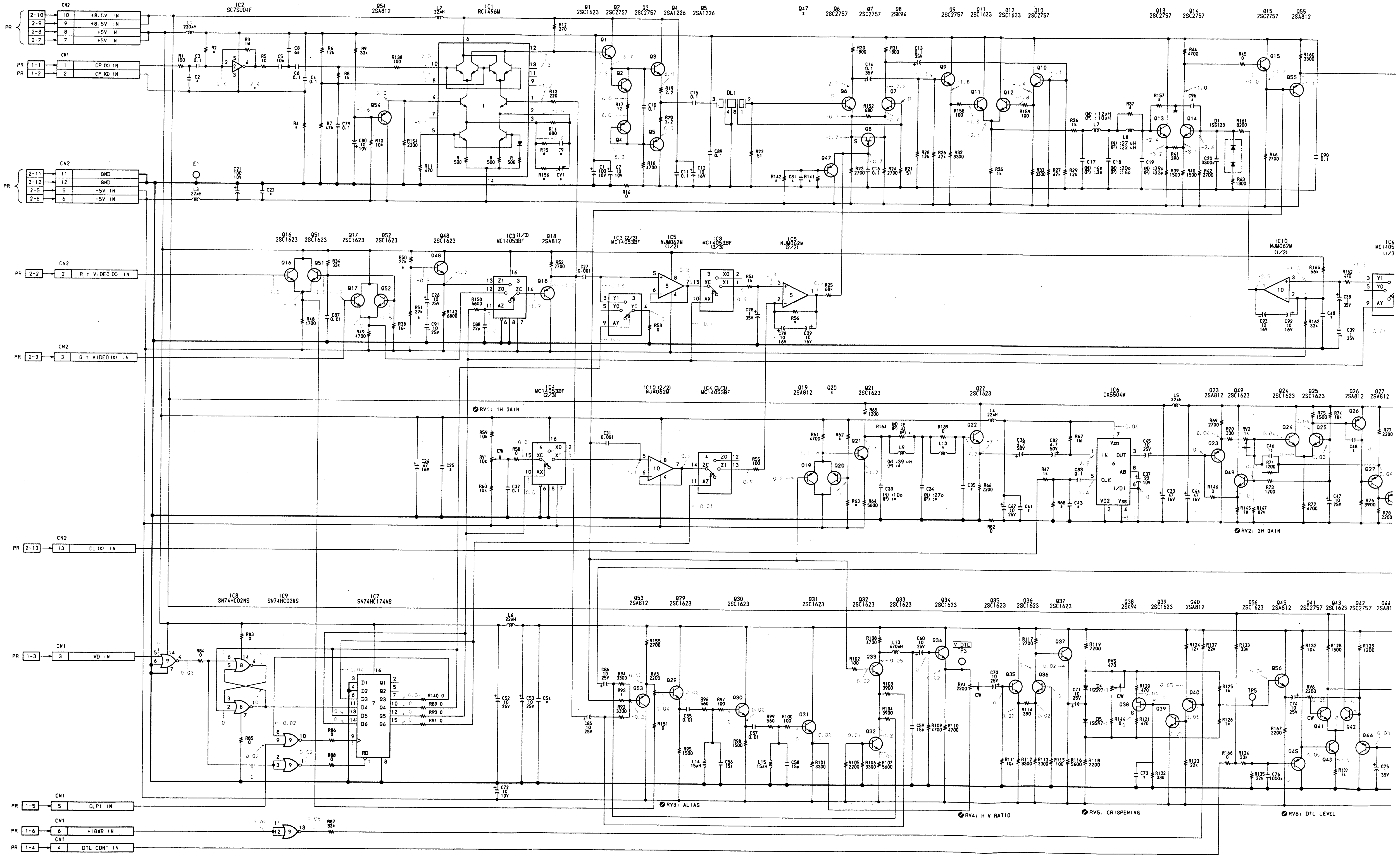
IC1-12 pin



TP4



IE-29 BOARD

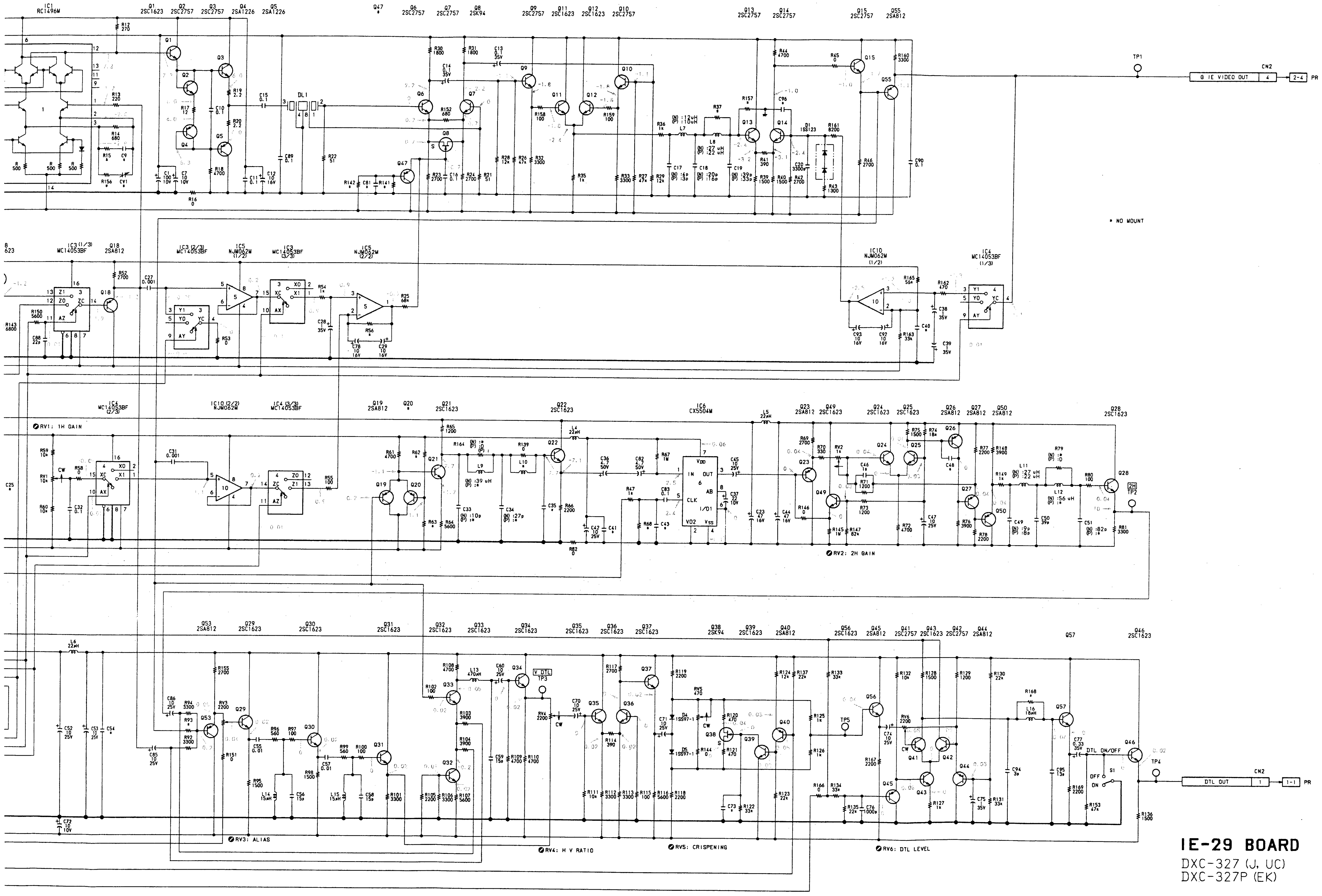

CN2
PR 2-10 10 +8.5V IN
PR 2-9 9 +8.5V IN
PR 2-8 8 +5V IN
PR 2-7 7 +5V IN
CN1
PR 1-1 1 CP (X) IN
PR 1-2 2 CP (Q) IN
CN2
PR 2-11 11 GND
PR 2-12 12 GND
PR 2-5 5 -5V IN
PR 2-6 6 -5V IN
PR 2-2 2 R + VIDEO (X) IN
PR 2-3 3 G + VIDEO (X) IN
PR 2-13 13 CL (X) IN
CN1
PR 1-3 3 VD IN
PR 1-5 5 CLP1 IN
PR 1-6 6 +18dB IN
PR 1-4 4 DTL CONT IN
IC2 SC7SU04F
IC1 RC1496M
Q54 2SA812
Q1 2SC1623
Q2 2SC2757
Q3 2SC2757
Q4 2SA1226
Q5 2SA1226
Q47
Q6 2SC2757
Q7 2SC2757
Q8 2SK94
Q9 2SC2757
Q11 2SC1623
Q12 2SC1623
Q10 2SC2757
Q13 2SC2757
Q14 2SC2757
Q15 2SC2757
Q55 2SA812
DL1
E1
Q16 2SC1623
Q51 2SC1623
Q17 2SC1623
Q52 2SC1623
Q48 2SC1623
IC3 (1/3) MC14053BF
Q18 2SA812
IC3 (2/3) MC14053BF
IC5 NJM062M (1/2)
IC3 (3/3) MC14053BF
IC5 NJM062M (2/2)
IC10 NJM062M (1/2)
IC4 (2/3) MC14053BF
IC10 (2/2) NJM062M
IC4 (3/3) MC14053BF
RV1: 1H GAIN
Q19 2SA812
Q20
Q21 2SC1623
Q22 2SC1623
IC6 CX5504M
Q23 2SA812
Q49 2SC1623
Q24 2SC1623
Q25 2SC1623
Q26 2SC1623
Q27 2SA812
RV2: 2H GAIN
IC8 SN74HC02NS
IC9 SN74HC02NS
IC7 SN74HC174NS
Q53 2SA812
Q29 2SC1623
Q30 2SC1623
Q31 2SC1623
Q32 2SC1623
Q33 2SC1623
Q34 2SC1623
Q35 2SC1623
Q36 2SC1623
Q37 2SC1623
Q38 2SK94
Q39 2SC1623
Q40 2SA812
Q56 2SC1623
Q45 2SA812
Q41 2SC2757
Q43 2SC1623
Q42 2SC2757
V DTL TP3
TP5
RV3: ALIAS
RV4: H V RATIO
RV5: CRISPENING
RV6: DTL LEVEL

DXC-327 (J, UC)
DXC-327P (EK)

C-19

C-20

A | B | C | D | E | F | G


IC1 RC1496M
Q1 2SC1623
Q2 2SC2757
Q3 2SC2757
Q4 2SA1226
Q5 2SA1226
DL1
TP1
CN2
IE VIDEO OUT
PR
* NO MOUNT
IC3 (1/3) MC14053BF
IC5 NJM062M
IC10 NJM062M
IC4 MC14053BF
IC6 CX5504M
RV1: 1H GAIN
RV2: 2H GAIN
RV3: ALIAS
RV4: H V RATIO
RV5: CRISPENING
RV6: DTL LEVEL
V DTL TP3
TP4
TP5
2H TP2
DTL ON/OFF
S1
OFF
ON
DTL OUT
1-1
PR

IE-29 BOARD

DXC-327 (J, UC)
DXC-327P (EK)

1
2
3
4
5
6

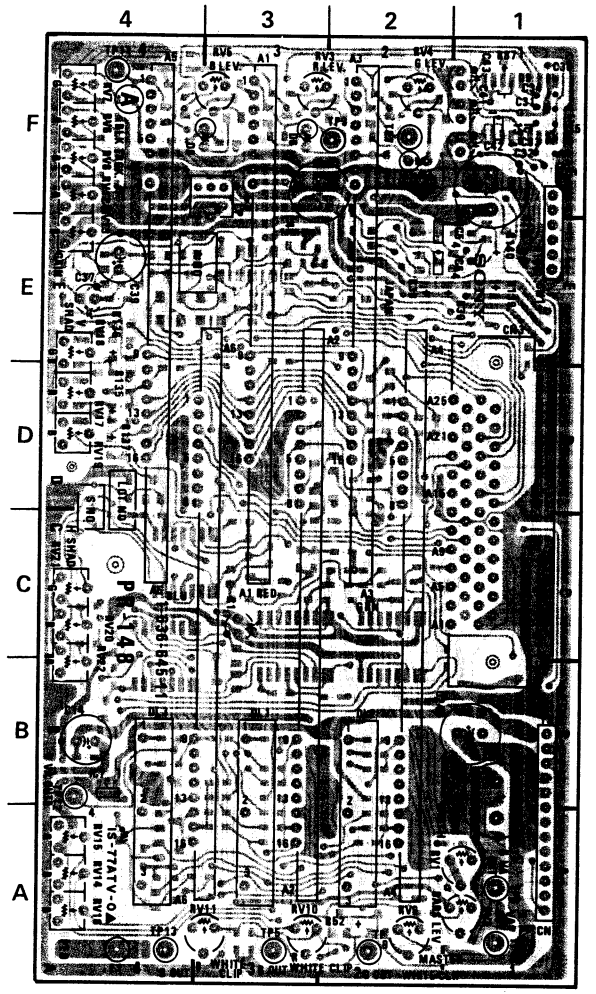
D | E | F | G | H | I

PR-148 BOARD

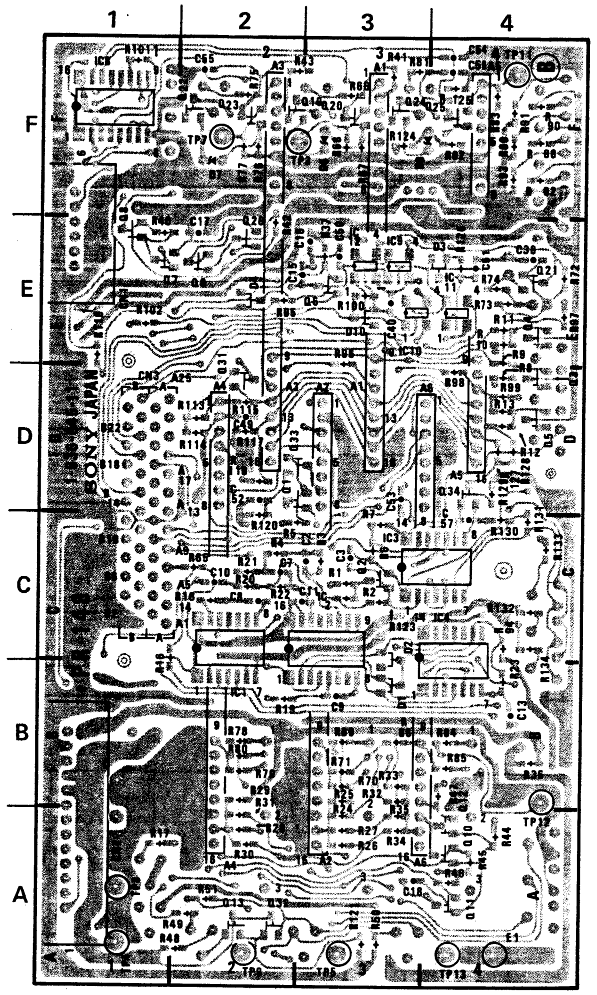
PR-148 (1-636-645-11)

CN1	E-1
CN2	A-1
CN3	E-1
DL1	B-3
DL2	B-2
DL3	B-4
D3	E-4
D4	E-2
D6	F-3
D7	F-2
D8	F-4
D9	F-1
D10	E-3
E1	A-4
IC1	B-2
IC2	C-3
IC3	C-3
IC4	C-4
IC5	E-1
IC6	E-1
IC7	B-4
IC8	F-1
IC9	E-3
IC10	E-3
IC11	E-4
IC12	E-3
IC13	F-1
LP1	F-3
Q1	D-2
Q2	C-3
Q3	D-4
Q4	E-4
Q5	D-4
Q6	E-3
Q7	E-1
Q8	E-1
Q9	E-2
Q10	A-4
Q11	A-4
Q12	B-4
Q13	A-2
Q19	F-3
Q20	F-3
Q21	E-4
Q22	F-2
Q23	F-2
Q24	F-3
Q25	F-4
Q26	E-2
Q31	D-2
Q32	A-2
Q33	D-2
Q34	D-4

RV1	A-2
RV2	A-1
RV3	F-3
RV4	F-2
RV5	F-3
RV6	F-4
RV7	F-4
RV8	F-4
RV9	A-2
RV10	A-3
RV11	A-3
RV12	F-4
RV13	E-4
RV14	A-4
RV15	A-4
RV16	A-4
RV17	D-4
RV18	E-4
RV19	D-4
RV20	C-4
RV21	C-4
RV22	C-4
TP3	F-2
TP4	A-1
TP5	A-3
TP7	F-2
TP8	A-1
TP9	A-2
TP11	F-4
TP12	B-4
TP13	A-4



1-636-645-11 COMPONENT SIDE



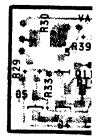
1-636-645-11 SOLDERING SIDE

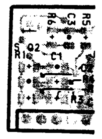
PR-148 (1-636-645-11)

CN1	E-1
CN2	A-1
CN3	E-1
DL1	B-3
DL2	B-2
DL3	B-4
D3	E-4
D4	E-2
D6	F-3
D7	F-2
D8	F-4
D9	F-1
D10	E-3
E1	A-4
IC1	B-2
IC2	C-3
IC3	C-3
IC4	C-4
IC5	E-1
IC6	E-1
IC7	B-4
IC8	F-1
IC9	E-3
IC10	E-3
IC11	E-4
IC12	E-3
IC13	F-1
LP1	F-3
Q1	D-2
Q2	C-3
Q3	D-4
Q4	E-4
Q5	D-4
Q6	E-3
Q7	E-1
Q8	E-1
Q9	E-2
Q10	A-4
Q11	A-4
Q12	B-4
Q13	A-2
Q19	F-3
Q20	F-3
Q21	E-4
Q22	F-2
Q23	F-2
Q24	F-3
Q25	F-4
Q26	E-2
Q31	D-2
Q32	A-2
Q33	D-2
Q34	D-4

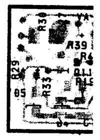
RV1	A-2
RV2	A-1
RV3	F-3
RV4	F-2
RV5	F-3
RV6	F-4
RV7	F-4
RV8	F-4
RV9	A-2
RV10	A-3
RV11	A-3
RV12	F-4
RV13	E-4
RV14	A-4
RV15	A-4
RV16	A-4
RV17	D-4
RV18	E-4
RV19	D-4
RV20	C-4
RV21	C-4
RV22	C-4
TP3	F-2
TP4	A-1
TP5	A-3
TP7	F-2
TP8	A-1
TP9	A-2
TP11	F-4
TP12	B-4
TP13	A-4

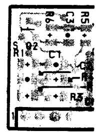
VA-10



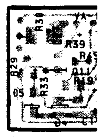


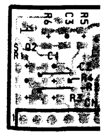
VA-10

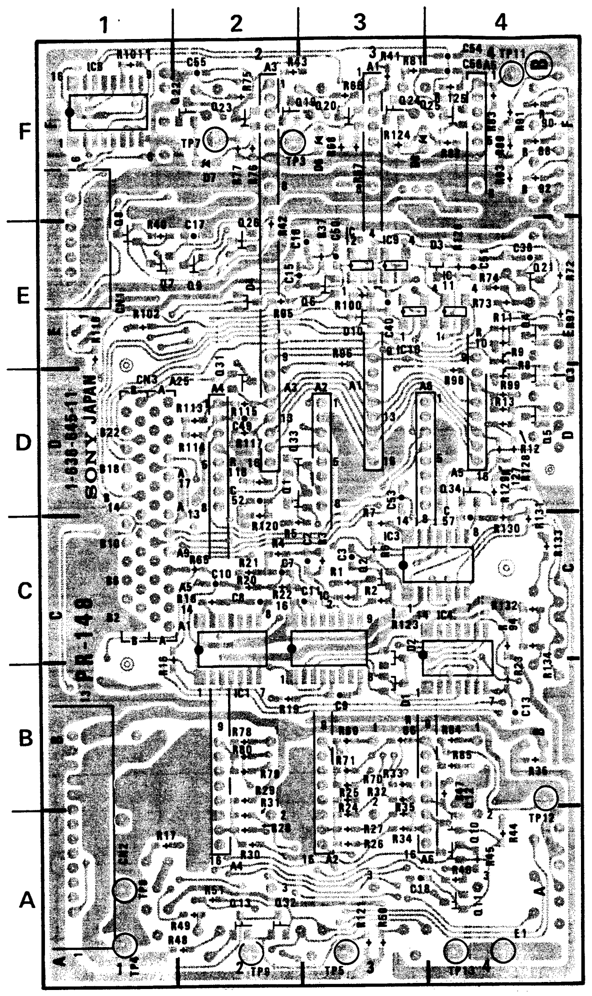




VA-10





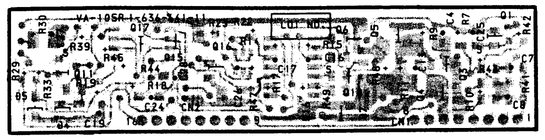


1-636-645-11 SOLDERING SIDE

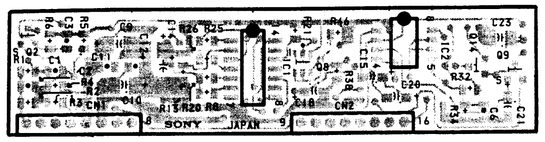
PR-148 (1-636-645-11)

CN1	E-1
CN2	A-1
CN3	E-1
DL1	B-3
DL2	B-2
DL3	B-4
D3	E-4
D4	E-2
D6	F-3
D7	F-2
D8	F-4
D9	F-1
D10	E-3
E1	A-4
IC1	B-2
IC2	C-3
IC3	C-3
IC4	C-4
IC5	E-1
IC6	E-1
IC7	B-4
IC8	F-1
IC9	E-3
IC10	E-3
IC11	E-4
IC12	E-3
IC13	F-1
LP1	F-3
Q1	D-2
Q2	C-3
Q3	D-4
Q4	E-4
Q5	D-4
Q6	E-3
Q7	E-1
Q8	E-1
Q9	E-2
Q10	A-4
Q11	A-4
Q12	B-4
Q13	A-2
Q19	F-3
Q20	F-3
Q21	E-4
Q22	F-2
Q23	F-2
Q24	F-3
Q25	F-4
Q26	E-2
Q31	D-2
Q32	A-2
Q33	D-2
Q34	D-4
RV1	A-2
RV2	A-1
RV3	F-3
RV4	F-2
RV5	F-3
RV6	F-4
RV7	F-4
RV8	F-4
RV9	A-2
RV10	A-3
RV11	A-3
RV12	F-4
RV13	E-4
RV14	A-4
RV15	A-4
RV16	A-4
RV17	D-4
RV18	E-4
RV19	D-4
RV20	C-4
RV21	C-4
RV22	C-4
TP3	F-2
TP4	A-1
TP5	A-3
TP7	F-2
TP8	A-1
TP9	A-2
TP11	F-4
TP12	B-4
TP13	A-4

VA-105R BOARD

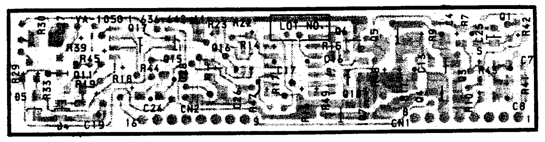


1-636-641-11 COMPONENT SIDE

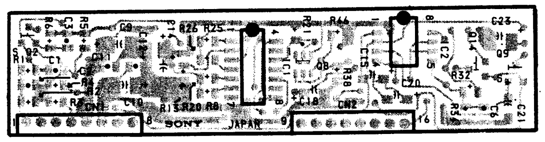


1-636-641-11 SOLDERING SIDE

VA-105G BOARD

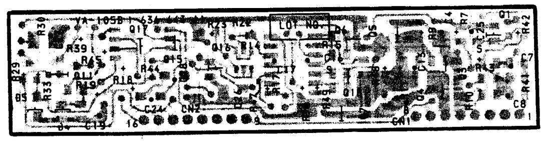


1-636-642-11 COMPONENT SIDE

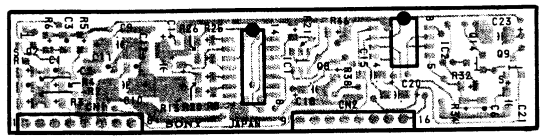


1-636-642-11 SOLDERING SIDE

VA-105B BOARD

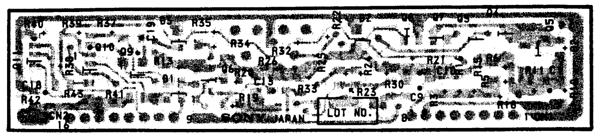


1-636-643-11 COMPONENT SIDE

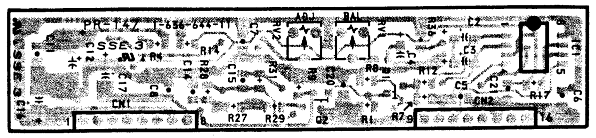


1-636-643-11 SOLDERING SIDE

PR-147R/G/B BOARD



1-636-644-11 COMPONENT SIDE



1-636-644-11 SOLDERING SIDE

PR-148 BOARD

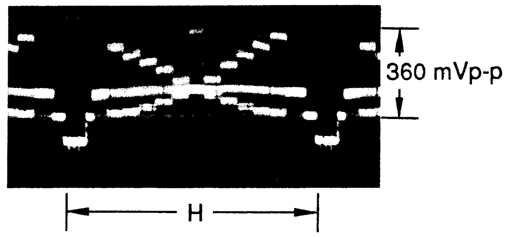
注意:

1. DC電圧はデジタル電圧計による値。
2. 波形写真、及びDC電圧は下記条件での測定。
   - グレースケールチャートを撮像し、波形モニターにて、ビデオ出力の白レベルが100 IREになる様にレンズ絞りをセットする。
   - GAIN : 0 dB
   - WHITE BAL : PRE
   - ABL : OFF
   - SHUTTER : OFF
   - ZEBRA : OFF
   - VF MARKER : OFF
   - PHASE : 0°
   - BARS : OFF

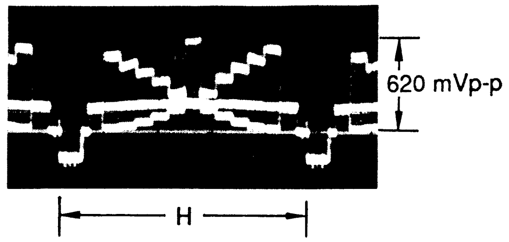
NOTE:

1. All voltage are DC, measured with a digital voltmeter.
2. All waveforms are taken and DC voltage is measured in condition below.
   - Shoot the grayscale chart. Adjust lens iris so that a white level is 100 IRE on the waveform monitor.
   - GAIN : 0 dB
   - WHITE BAL : PRE
   - ABL : OFF
   - SHUTTER : OFF
   - ZEBRA : OFF
   - VF MARKER : OFF
   - PHASE : 0°
   - BARS : OFF

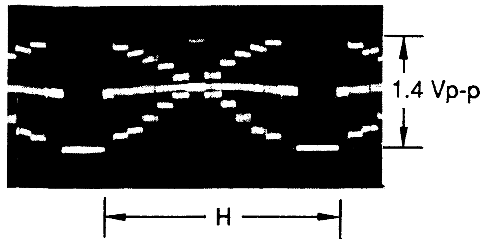
TP3



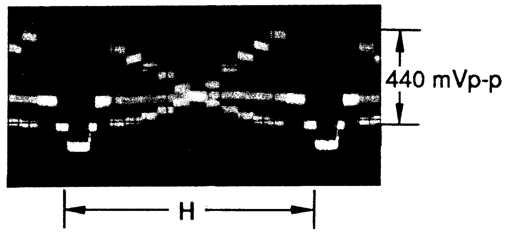
TP4



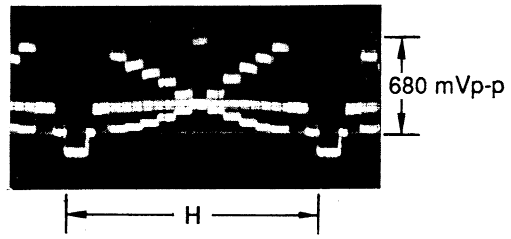
TP5



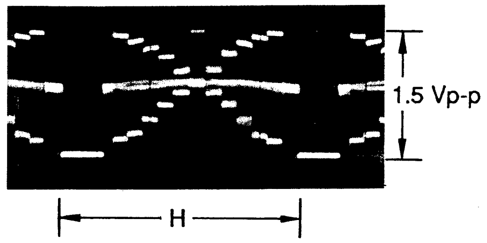
TP7



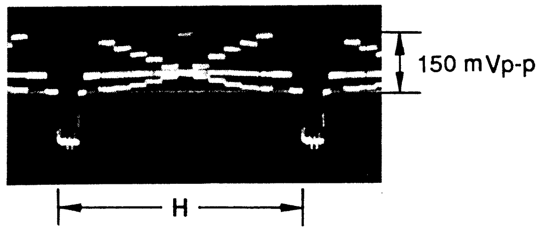
TP8



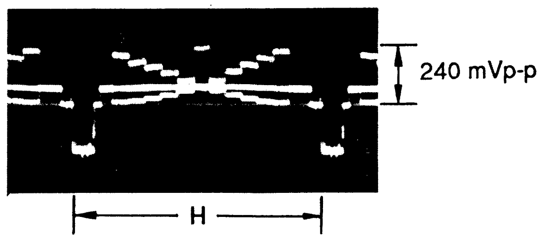
TP9



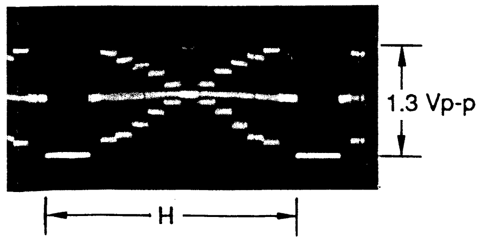
TP11



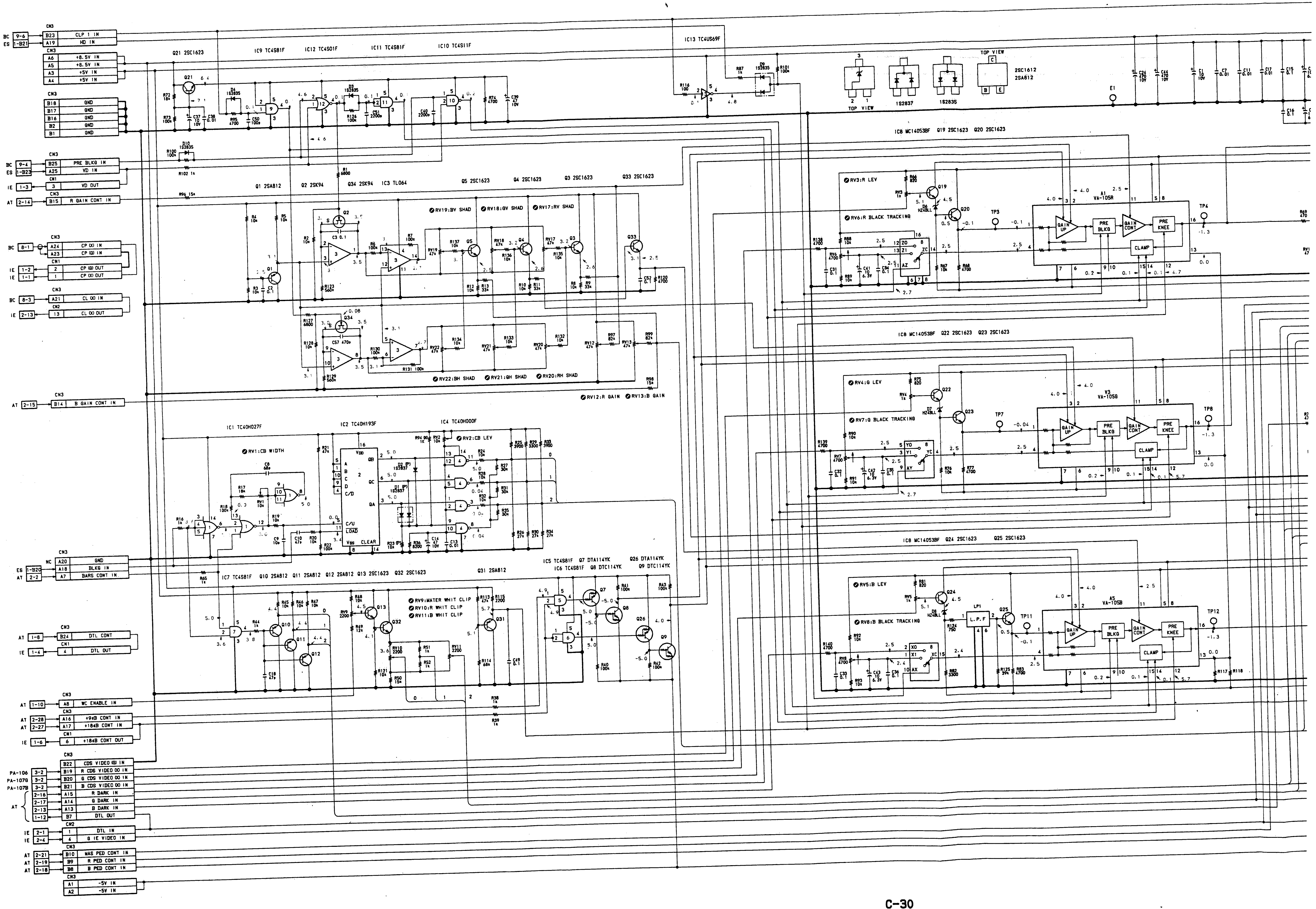
TP12

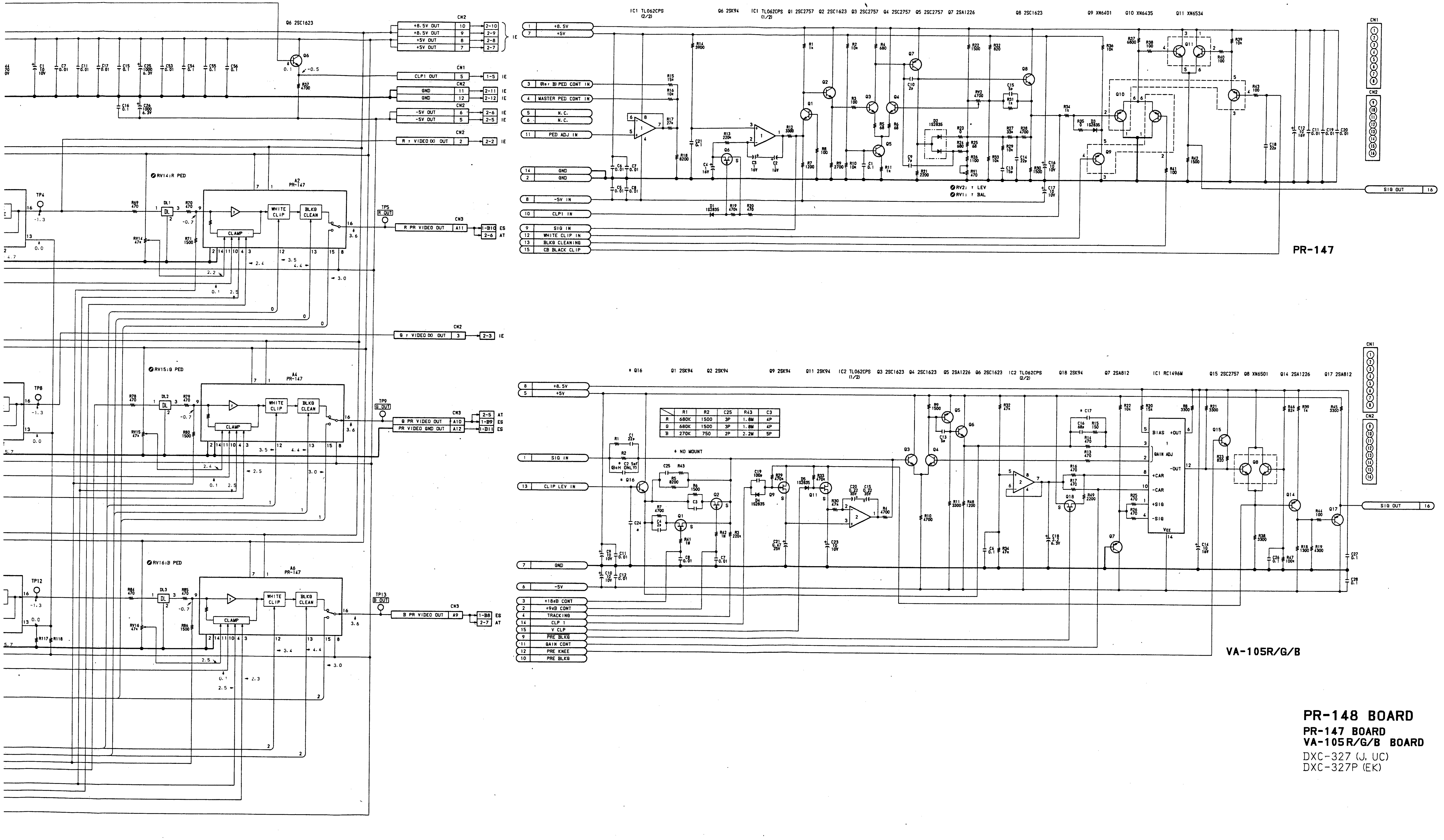


TP13



PR-148 BOARD
VA-105R/G/B BOARD
PR-147R/G/B BOARD


CN3
CLP 1 IN
HD IN
+8.5V IN
+5V IN
GND
PRE BLKG IN
VD IN
VD OUT
R GAIN CONT IN
CP (R) IN
CP (B) IN
CP (R) OUT
CP (B) OUT
CL (R) IN
CL (B) OUT
B GAIN CONT IN
BLKG IN
BARS CONT IN
DTL CONT
DTL OUT
WC ENABLE IN
+9dB CONT IN
+18dB CONT IN
+18dB CONT OUT
CDS VIDEO (G) IN
R CDS VIDEO (R) IN
B CDS VIDEO (B) IN
R DARK IN
G DARK IN
B DARK IN
DTL OUT
DTL IN
G IE VIDEO IN
WAS PED CONT IN
R PED CONT IN
B PED CONT IN
-5V IN
Q21 2SC1623
IC9 TC4S81F
IC12 TC4S01F
IC11 TC4S81F
IC10 TC4S11F
IC13 TC4U569F
Q1 2SA812
Q2 2SK94
Q34 2SK94
IC3 TL064
Q5 2SC1623
Q4 2SC1623
Q3 2SC1623
Q33 2SC1623
RV19:BV SHAD
RV18:GV SHAD
RV17:RV SHAD
RV22:BH SHAD
RV21:GH SHAD
RV20:RH SHAD
RV12:R GAIN
RV13:B GAIN
IC1 TC40H027F
IC2 TC40H193F
IC4 TC40H000F
RV1:CB WIDTH
RV2:CB LEV
IC7 TC4S81F
Q10 2SA812
Q11 2SA812
Q12 2SA812
Q13 2SC1623
Q32 2SC1623
Q31 2SA812
RV9:MATER WHIT CLIP
RV10:R WHIT CLIP
RV11:B WHIT CLIP
IC5 TC4S81F
IC6 TC4S81F
Q7 DTA114YK
Q8 DTC114YK
Q26 DTA114YK
Q9 DTC114YK
TOP VIEW
1S2837
1S2835
2SC1612
2SA812
IC8 MC14053BF
Q19 2SC1623
Q20 2SC1623
RV3:R LEV
RV6:R BLACK TRACKING
A1 VA-105R
GAIN UP
PRE BLKG
GAIN CONT
PRE KNEE
CLAMP
TP3
TP4
Q22 2SC1623
Q23 2SC1623
RV4:G LEV
RV7:G BLACK TRACKING
V3 VA-105G
TP7
TP8
Q24 2SC1623
Q25 2SC1623
RV5:B LEV
RV8:B BLACK TRACKING
LP1
L.P.F
A5 VA-105B
TP11
TP12


Q6 2SC1623
CN2
+8.5V OUT
+5V OUT
CN1
CLP1 OUT
GND
-5V OUT
R r VIDEO OO OUT
G r VIDEO OO OUT
RV14:R PED
RV15:G PED
RV16:B PED
A2 PR-147
A4 PR-147
A6 PR-147
DL
WHITE CLIP
BLKG CLEAN
CLAMP
TP4
TP5 R OUT
TP8
TP9 G OUT
TP12
TP13 B OUT
CN3
R PR VIDEO OUT
G PR VIDEO OUT
PR VIDEO GND OUT
B PR VIDEO OUT
IE
ES
AT
IC1 TL062CPS
Q6 2SK94
Q1 2SC2757
Q2 2SC1623
Q3 2SC2757
Q4 2SC2757
Q5 2SC2757
Q7 2SA1226
Q8 2SC1623
Q9 XN6401
Q10 XN6435
Q11 XN6534
+8.5V
+5V
R or B PED CONT IN
MASTER PED CONT IN
N.C.
PED ADJ IN
GND
-5V IN
CLP1 IN
SIG IN
WHITE CLIP IN
BLKG CLEANING
CB BLACK CLIP
RV2: γ LEV
RV1: γ BAL
SIG OUT
PR-147
* Q16
Q1 2SK94
Q2 2SK94
Q9 2SK94
Q11 2SK94
IC2 TL062CPS
Q3 2SC1623
Q4 2SC1623
Q5 2SA1226
Q6 2SC1623
Q18 2SK94
Q7 2SA812
IC1 RC1496M
Q15 2SC2757
Q8 XN6501
Q14 2SA1226
Q17 2SA812
* NO MOUNT
CLIP LEV IN
BIAS
GAIN ADJ
+CAR
-CAR
+SIG
-SIG
+OUT
-OUT
VEE
+18dB CONT
+9dB CONT
TRACKING
CLP 1
V CLP
PRE BLKG
GAIN CONT
PRE KNEE
VA-105R/G/B

	R1	R2	C25	R43	C3
R	680K	1500	3P	1.8M	4P
G	680K	1500	3P	1.8M	4P
B	270K	750	2P	2.2M	5P

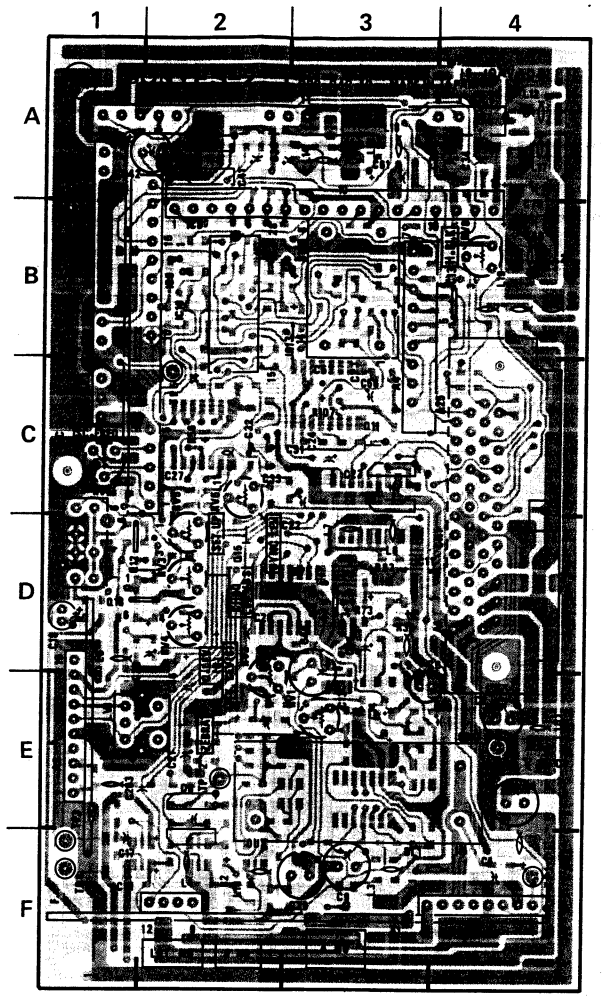
PR-148 BOARD
PR-147 BOARD
VA-105R/G/B BOARD
DXC-327 (J, UC)
DXC-327P (EK)

ES-2 BOARD

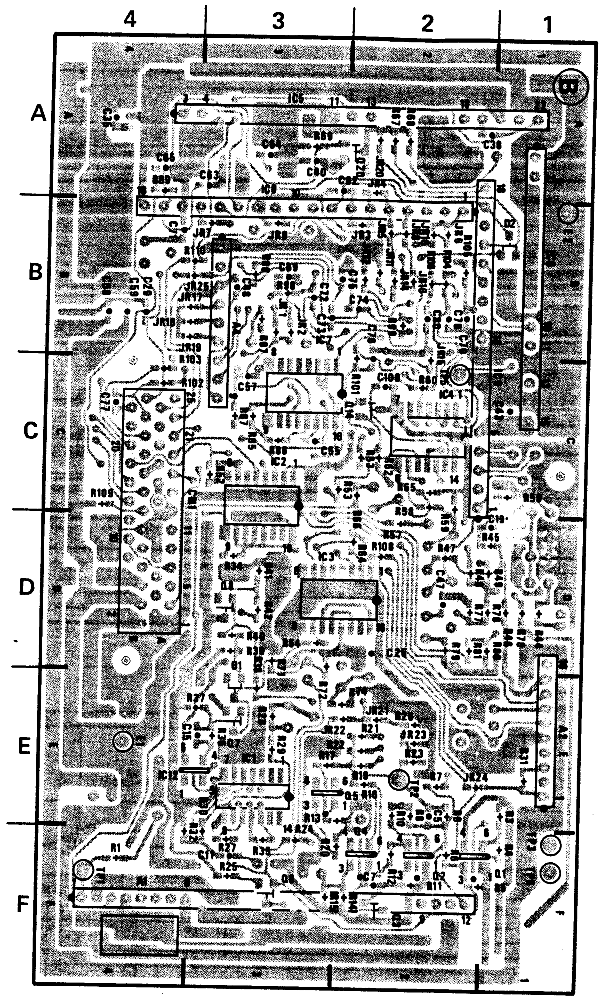
ES-2 (1-636-646-12)

CN1	D-4
DL1	F-3
D1	D-3
D2	B-1
E1	E-4
FL1	D-1
IC1	E-3
IC2	C-3
IC3	D-3
IC4	C-2
IC5	A-4
IC6	B-1
IC7	B-3
IC8	B-2
IC9	B-2
IC10	B-2
IC11	D-3
IC12	E-4
IC13	B-4
JR2	B-3
JR3	B-2
JR4	A-2
JR6	B-2
JR8	B-2
JR9	B-3
JR13	B-3
JR14	B-2
JR15	B-2
JR18	B-4
JR20	A-2
JR22	E-2
JR23	E-2
LV1	E-1
Q1	F-1
Q2	F-2
Q3	F-2
Q4	F-2
Q5	E-2
Q6	F-3
Q7	E-3
Q8	D-3
Q9	D-3
Q11	C-3
Q12	D-1
Q13	D-1
Q14	C-2
Q15	D-2
Q20	A-2
RV1	E-3
RV2	D-2
RV3	D-2
RV4	D-2
RV5	C-2
RV6	C-2
RV7	C-1
RV8	B-4

TP1	F-4
TP2	E-2
TP5	C-2



1-636-646-12 COMPONENT SIDE

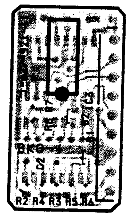


1-636-646-12 SOLDERING SIDE

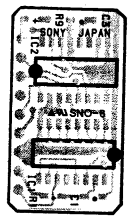
ES-2 (1-636-646-12)

CN1	D-4
DL1	F-3
D1	D-3
D2	B-1
E1	E-4
FL1	D-1
IC1	E-3
IC2	C-3
IC3	D-3
IC4	C-2
IC5	A-4
IC6	B-1
IC7	B-3
IC8	B-2
IC9	B-2
IC10	B-2
IC11	D-3
IC12	E-4
IC13	B-4
JR2	B-3
JR3	B-2
JR4	A-2
JR6	B-2
JR8	B-2
JR9	B-3
JR13	B-3
JR14	B-2
JR15	B-2
JR18	B-4
JR20	A-2
JR22	E-2
JR23	E-2
LV1	E-1
Q1	F-1
Q2	F-2
Q3	F-2
Q4	F-2
Q5	E-2
Q6	F-3
Q7	E-3
Q8	D-3
Q9	D-3
Q11	C-3
Q12	D-1
Q13	D-1
Q14	C-2
Q15	D-2
Q20	A-2
RV1	E-3
RV2	D-2
RV3	D-2
RV4	D-2
RV5	C-2
RV6	C-2
RV7	C-1
RV8	B-4
TP1	F-4
TP2	E-2
TP5	C-2

BKG-4 BOARD (NTSC ONLY)

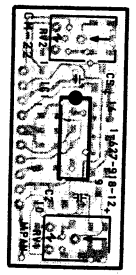


1-627-921-11 COMPONENT SIDE

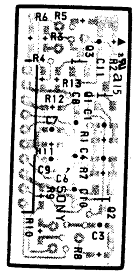


1-627-921-11 SOLDERING SIDE

CM-22 BOARD

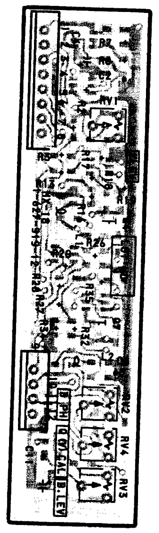


1-627-918-12 COMPONENT SIDE

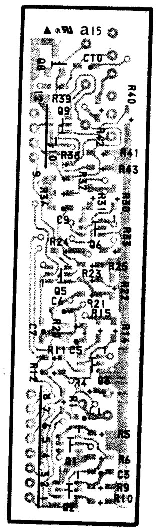


1-627-918-12 SOLDERING SIDE

MX-18 BOARD



1-627-919-12 COMPONENT SIDE



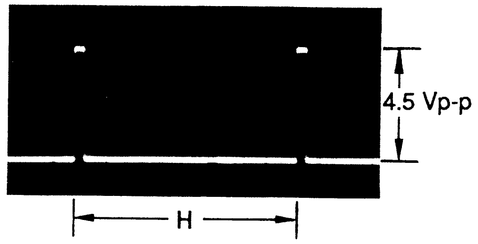
1-627-919-12 SOLDERING SIDE

ES-2 BOARD

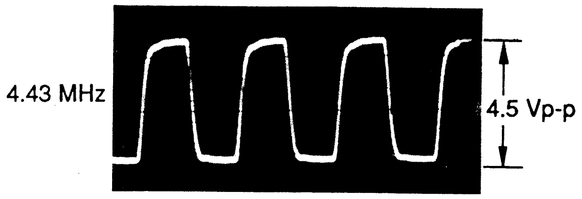
注意:
1. DC電圧はデジタル電圧計による値。
2. 波形写真、及びDC電圧は下記条件での測定。
   - グレースケールチャートを撮像し、波形モニターにて、ビデオ出力の白レベルが100 IREになる様にレンズ絞りをセットする。
   - GAIN : 0 dB
   - WHITE BAL : PRE
   - ABL : OFF
   - SHUTTER : OFF
   - ZEBRA : OFF
   - VF MARKER : OFF
   - PHASE : 0°
   - BARS : ON

NOTE:
1. All voltage are DC, measured with a digital voltmeter.
2. All waveforms are taken and DC voltage is measured in condition below.
   - Shoot the grayscale chart. Adjust lens iris so that a white level is 100 IRE on the waveform monitor.
   - GAIN : 0 dB
   - WHITE BAL : PRE
   - ABL : OFF
   - SHUTTER : OFF
   - ZEBRA : OFF
   - VF MARKER : OFF
   - PHASE : 0°
   - BARS : ON

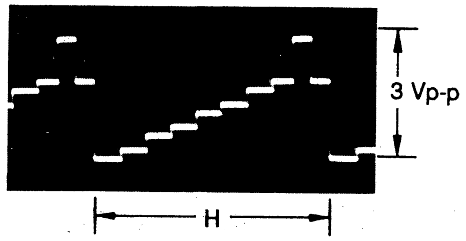
MX-18 12 pin



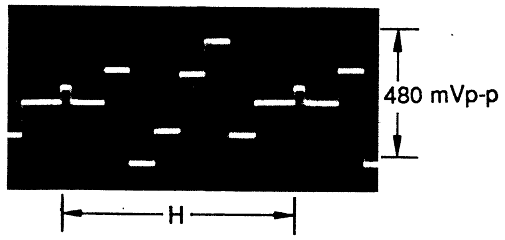
TP5



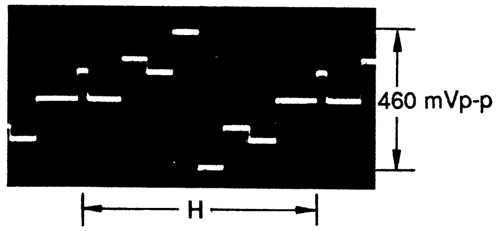
TP1



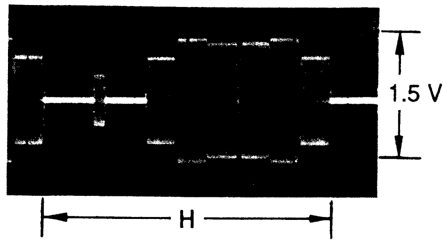
TP3



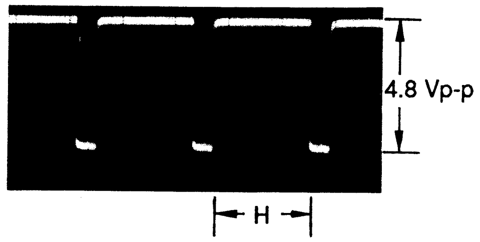
TP6



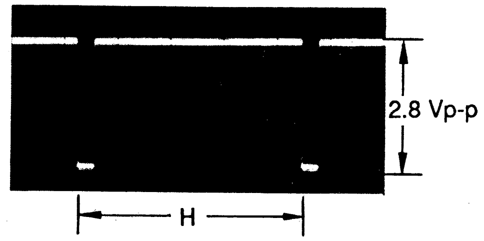
TP4



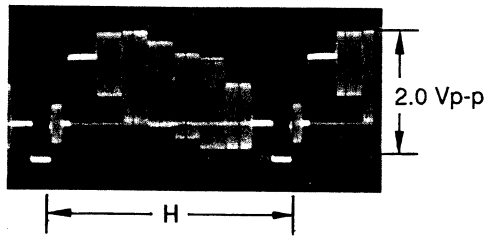
CN1-B20 pin



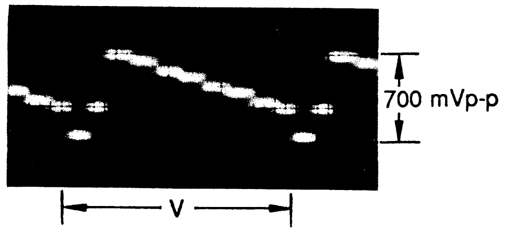
CN1-A21 pin



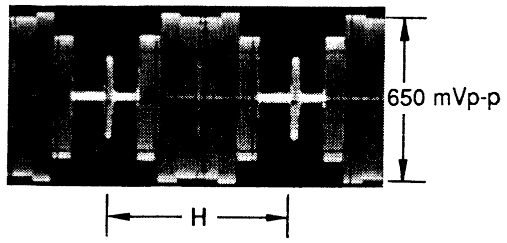
TP2 (VIDEO OUT)



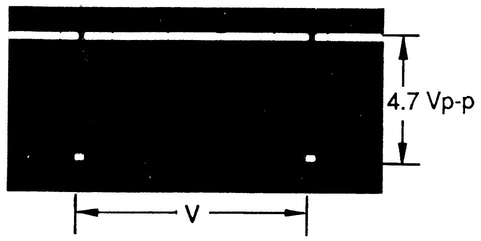
A9



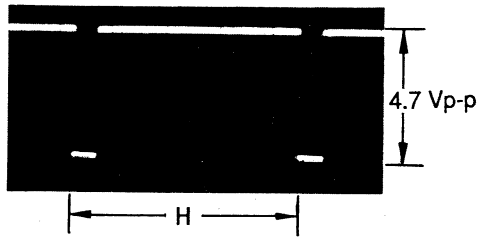
CN1-A11 pin



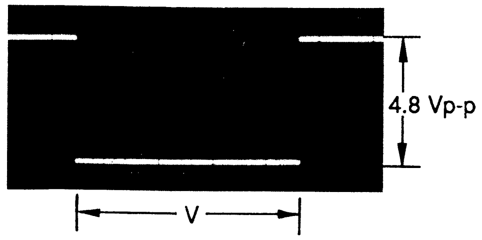
CN1-B23 pin



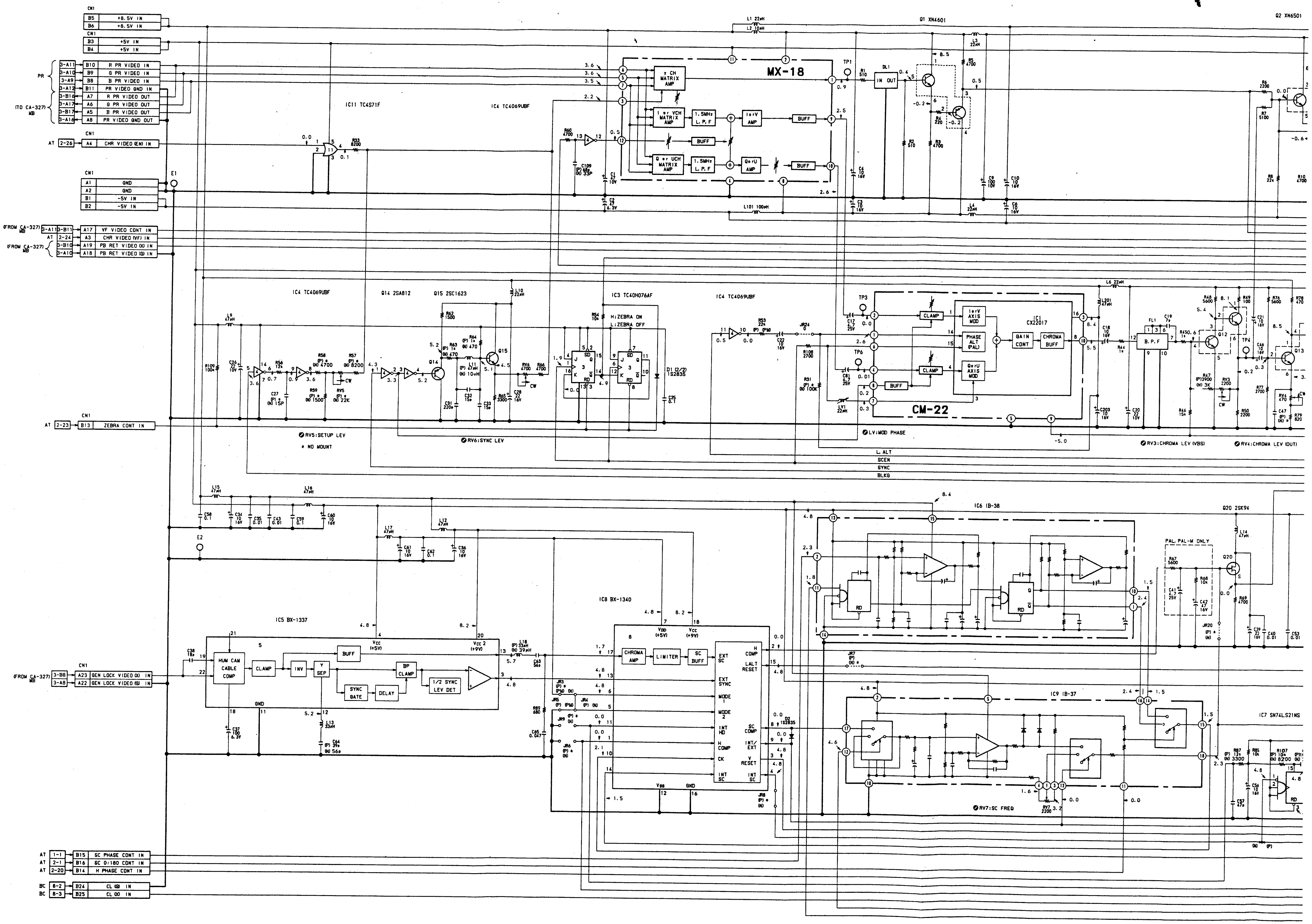
CN1-B21 pin

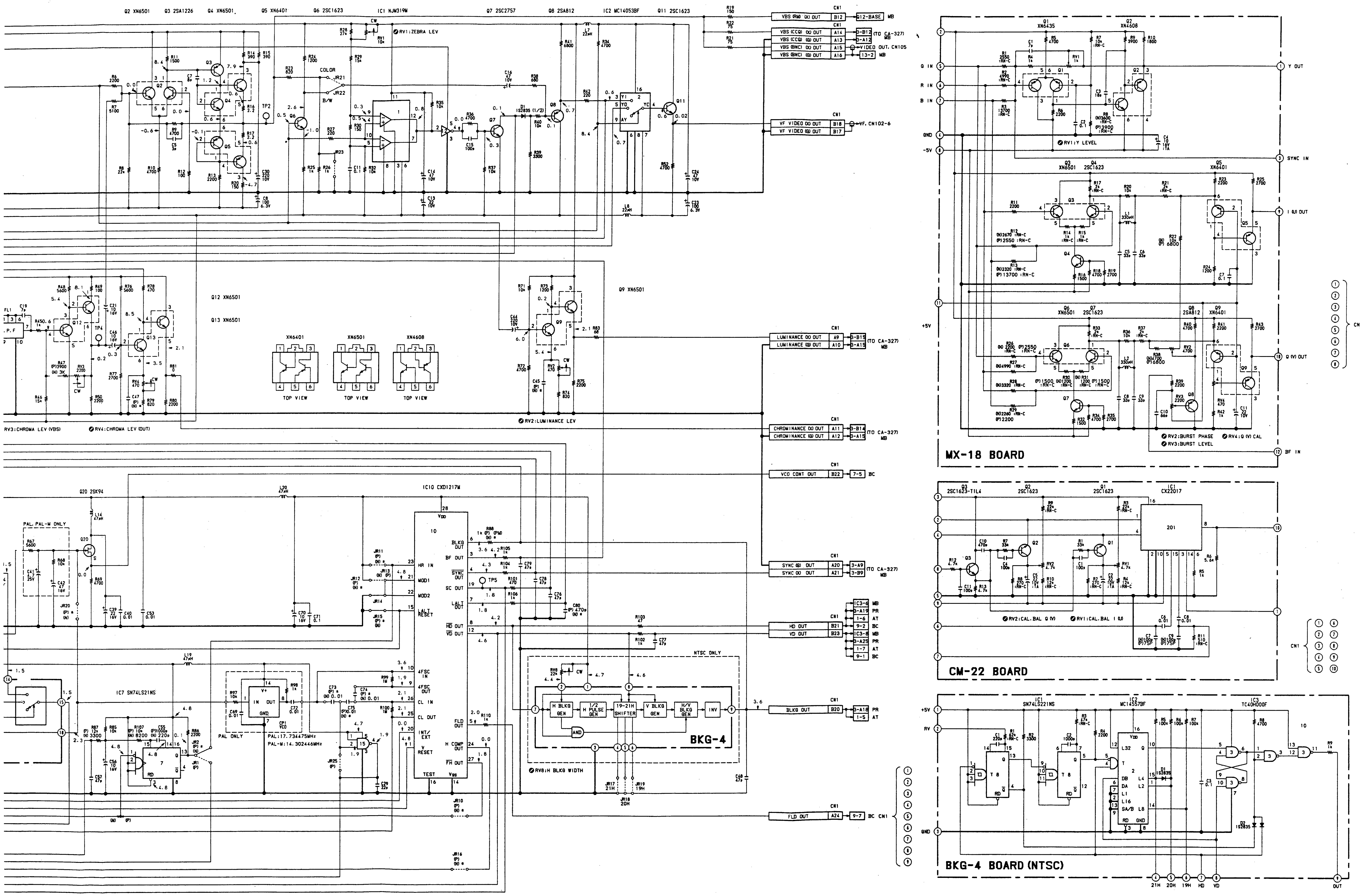


CN1-A24 pin



ES-2 BOARD
BKG-4 BOARD
CM-22 BOARD
MX-18 BOARD


CN1
+8.5V IN
+5V IN
R PR VIDEO IN
G PR VIDEO IN
B PR VIDEO IN
PR VIDEO GND IN
R PR VIDEO OUT
G PR VIDEO OUT
B PR VIDEO OUT
PR VIDEO GND OUT
CHR VIDEO (EN) IN
GND
-5V IN
VF VIDEO CONT IN
CHR VIDEO (VF) IN
PB RET VIDEO IN
ZEBRA CONT IN
GEN LOCK VIDEO IN
SC PHASE CONT IN
SC 0/180 CONT IN
H PHASE CONT IN
CL IN
IC11 TC4S71F
IC4 TC4069UBF
MX-18
Y CH MATRIX AMP
1.5MHz L.P.F
BUFF
Q1 XN4601
Q2 XN6501
DL1
IC3 TC40H076AF
H: ZEBRA ON L: ZEBRA OFF
Q14 2SA812
Q15 2SC1623
IC1 CX22017
CLAMP
PHASE ALT (PAL)
GAIN CONT
CHROMA BUFF
B.P.F
CM-22
RV5: SETUP LEV
* NO MOUNT
RV6: SYNC LEV
LV: MOD PHASE
RV3: CHROMA LEV (VBS)
RV4: CHROMA LEV (OUT)
L. ALT
SCEN
SYNC
BLKG
IC6 IB-38
Q20 2SK94
PAL, PAL-M ONLY
IC5 BX-1337
HUM CAN CABLE COMP
INV
Y SEP
BP CLAMP
SYNC GATE
DELAY
1/2 SYNC LEV DET
IC8 BX-1340
CHROMA AMP
LIMITER
SC BUFF
EXT SC
EXT SYNC
MODE 1
MODE 2
INT HD
H COMP
CK
INT SC
H COMP
L ALT RESET
SC COMP
INT/EXT
V RESET
IC9 IB-37
RV7: SC FREQ
IC7 SN74LS21NS


Q2 XN6501
Q3 2SA1226
Q4 XN6501
Q5 XN6401
Q6 2SC1623
IC1 NJM319M
Q7 2SC2757
Q8 2SA812
IC2 MC14053BF
Q11 2SC1623
RV1:ZEBRA LEV
COLOR
B/W
TP2
VBS (RM) OUT
VBS (CCQ) OUT
VBS (BNC) OUT
VF VIDEO OUT
B12
A14
A13
A15
A16
B18
B17
Q12-BASE MB
(TO CA-327) MB
VIDEO OUT, CN105
13-2 MB
VF, CN102-6
Q12 XN6501
Q13 XN6501
Q9 XN6501
XN6401
XN6501
XN4608
TOP VIEW
RV3:CHROMA LEV (VBS)
RV4:CHROMA LEV (OUT)
RV2:LUMINANCE LEV
LUMINANCE OUT
CHROMINANCE OUT
VCO CONT OUT
SYNC OUT
HD OUT
VD OUT
BLKG OUT
FLD OUT
Q20 2SK94
PAL, PAL-M ONLY
IC10 CXD1217M
HR IN
MOD1
MOD2
LALT RESET
BLKG OUT
BF OUT
SYNC OUT
SC OUT
LALT OUT
HD OUT
VD OUT
4FSC IN
4FSC OUT
CL IN
CL OUT
INT/EXT
V RESET
FLD OUT
H COMP OUT
FH OUT
TEST
TP4
TP5
IC7 SN74LS21NS
PAL ONLY
CP1 VCO
PAL:17.734475MHz
PAL-M:14.302446MHz
NTSC ONLY
H BLKG GEN
1/2 H PULSE GEN
19-21H SHIFTER
V BLKG GEN
H/V BLKG GEN
INV
AND
BKG-4
RV8:H BLKG WIDTH
21H
20H
19H
Q1 XN6435
Q2 XN4608
G IN
R IN
B IN
GND
-5V
Y OUT
SYNC IN
RV1:Y LEVEL
Q3 XN6501
Q4 2SC1623
Q5 XN6401
I (U) OUT
Q6 XN6501
Q7 2SC1623
Q8 2SA812
Q9 XN6401
Q (V) OUT
+5V
RV2:BURST PHASE
RV3:BURST LEVEL
RV4:Q (V) CAL
BF IN
MX-18 BOARD
CN1
CN2
Q3 2SC1623-T1L4
Q2 2SC1623
Q1 2SC1623
IC1 CX22017
RV2:CAL.BAL Q (V)
RV1:CAL.BAL I (U)
CM-22 BOARD
IC1 SN74LS221NS
IC2 MC14557BF
IC3 TC40H000F
RV
GND
OUT
HD
VD
BKG-4 BOARD (NTSC)

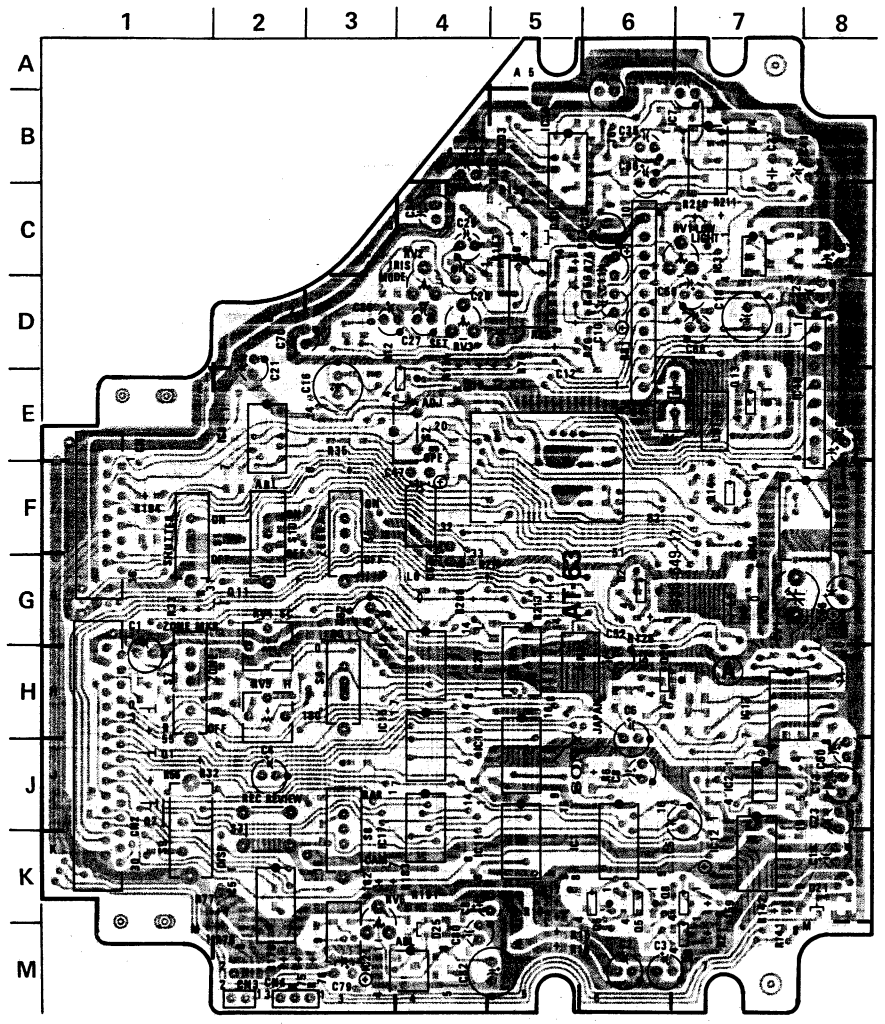
ES-2N/2P BOARD

CM-22 BOARD
BKG-4 BOARD (J, UC)
MX-18 BOARD
DXC-327 (J, UC)
DXC-327P (EK)

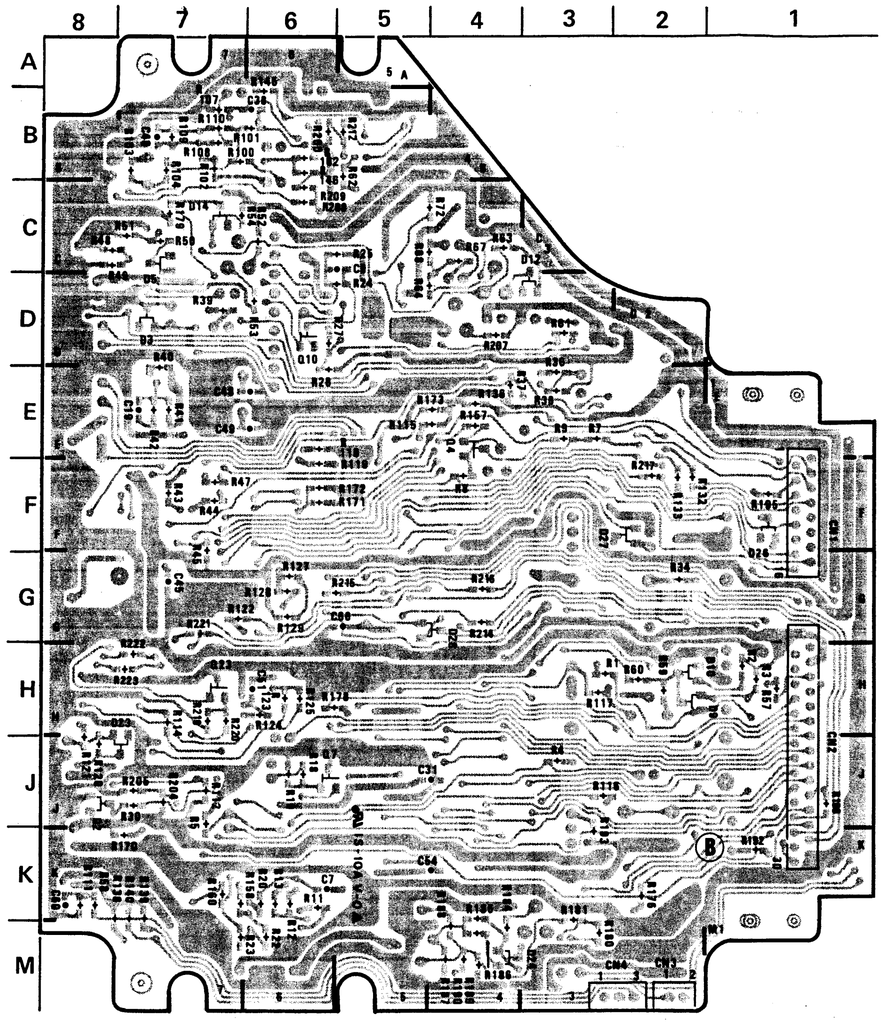
AT-63 BOARD

AT-63 (1-636-649-11)

CN1	E-1	RV1	C-7
CN2	J-1	RV2	C-4
CN3	M-2	RV3	D-4
CN4	M-2	RV4	G-2
		RV5	H-2
CV1	G-8	RV6	K-3
D2	J-8	S1	F-2
D3	D-8	S2	E-4
D5	D-7	S3	J-2
D9	H-1	S4	H-3
D10	H-1	S5	F-3
D11	C-5	S7	H-1
D12	C-3	S8	J-3
D13	C-5	S9	K-1
D14	C-7	S10	F-2
D21	K-8		
D23	H-8	X1	E-6
D24	M-3		
D25	M-4		
D26	F-1		
D27	F-3		
D28	G-4		
IC1	K-5		
IC2	J-7		
IC3	C-7		
IC4	D-5		
IC5	K-2		
IC7	B-7		
IC8	E-2		
IC9	E-5		
IC10	J-4		
IC11	K-4		
IC12	K-7		
IC13	H-7		
IC14	H-3		
IC15	H-3		
IC16	F-7		
IC17	K-3		
IC18	B-5		
IC19	E-8		
IC20	H-4		
IC21	M-3		
Q1	J-1		
Q2	J-1		
Q3	H-1		
Q4	E-4		
Q5	M-6		
Q6	M-6		
Q7	J-6		
Q8	K-6		
Q9	M-7		
Q10	D-6		
Q11	G-2		
Q12	D-3		
Q13	E-7		
Q14	F-7		
Q20	H-6		
Q21	G-6		
Q23	H-7		
RB1	D-6		



1-636-649-11 COMPONENT SIDE



1-636-649-11 SOLDERING SIDE

AT-63 (1-636-649-11)

CN1	E-1	RV1	C-7
CN2	J-1	RV2	C-4
CN3	M-2	RV3	D-4
CN4	M-2	RV4	G-2
		RV5	H-2
CV1	G-8	RV6	K-3
D2	J-8	S1	F-2
D3	D-8	S2	E-4
D5	D-7	S3	J-2
D9	H-1	S4	H-3
D10	H-1	S5	F-3
D11	C-5	S7	H-1
D12	C-3	S8	J-3
D13	C-5	S9	K-1
D14	C-7	S10	F-2
D21	K-8		
D23	H-8	X1	E-6
D24	M-3		
D25	M-4		
D26	F-1		
D27	F-3		
D28	G-4		
IC1	K-5		
IC2	J-7		
IC3	C-7		
IC4	D-5		
IC5	K-2		
IC7	B-7		
IC8	E-2		
IC9	E-5		
IC10	J-4		
IC11	K-4		
IC12	K-7		
IC13	H-7		
IC14	H-3		
IC15	H-3		
IC16	F-7		
IC17	K-3		
IC18	B-5		
IC19	E-8		
IC20	H-4		
IC21	M-3		
Q1	J-1		
Q2	J-1		
Q3	H-1		
Q4	E-4		
Q5	M-6		
Q6	M-6		
Q7	J-6		
Q8	K-6		
Q9	M-7		
Q10	D-6		
Q11	G-2		
Q12	D-3		
Q13	E-7		
Q14	F-7		
Q20	H-6		
Q21	G-6		
Q23	H-7		
RB1	D-6		

AT-63 BOARD

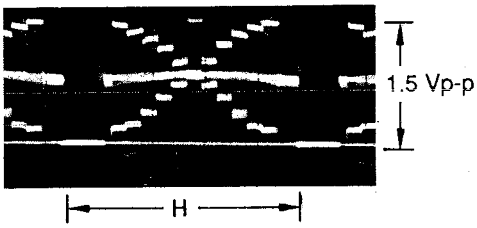
注意:

1. DC電圧はデジタル電圧計による値。
2. 波形写真、及びDC電圧は下記条件での測定。
   - グレースケールチャートを撮像し、波形モニターにて、ビデオ出力の白レベルが100 IREになる様にレンズ絞りをセットする。
   - GAIN : 0 dB
   - WHITE BAL : PRE
   - ABL : OFF
   - SHUTTER : OFF
   - ZEBRA : OFF
   - VF MARKER : OFF
   - PHASE : 0°
   - BARS : OFF

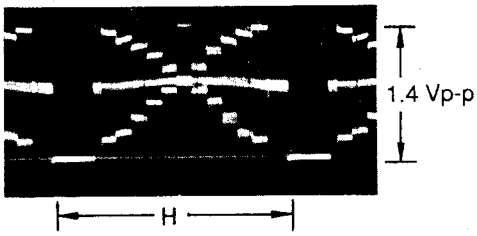
NOTE:

1. All voltage are DC, measured with a digital voltmeter.
2. All waveforms are taken and DC voltage is measured in condition below.
   - Shoot the grayscale chart. Adjust lens iris so that a white level is 100 IRE on the waveform monitor.
   - GAIN : 0 dB
   - WHITE BAL : PRE
   - ABL : OFF
   - SHUTTER : OFF
   - ZEBRA : OFF
   - VF MARKER : OFF
   - PHASE : 0°
   - BARS : OFF

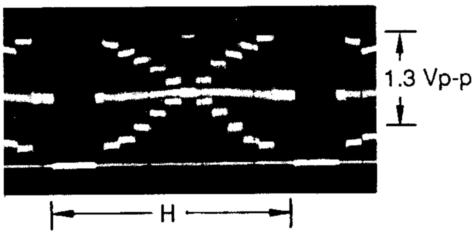
CN2-5 pin



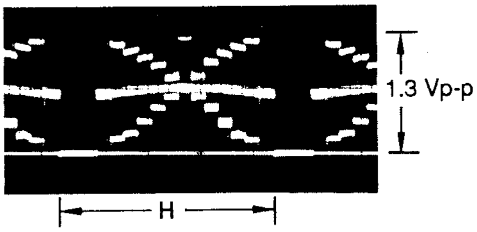
CN2-6 pin



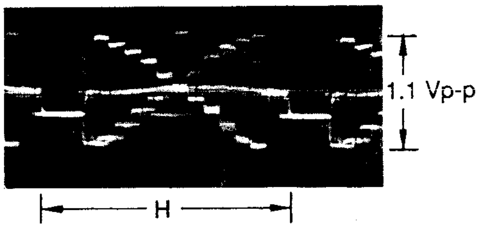
CN2-7 pin



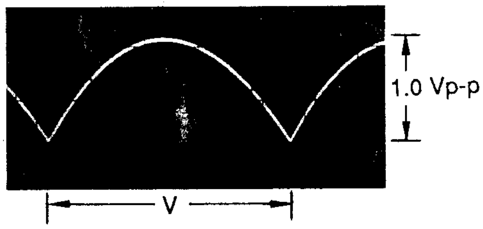
Q11-emitter



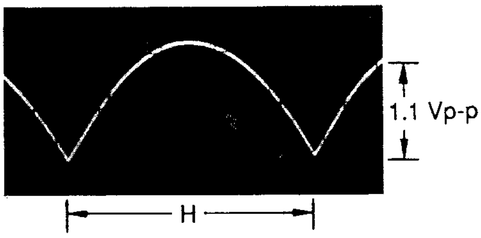
IC4-5 pin



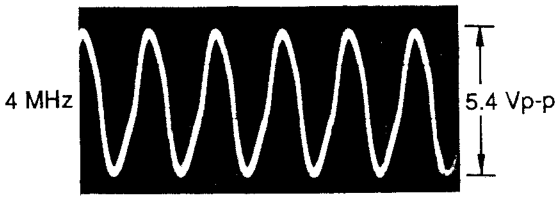
IC7-8 pin



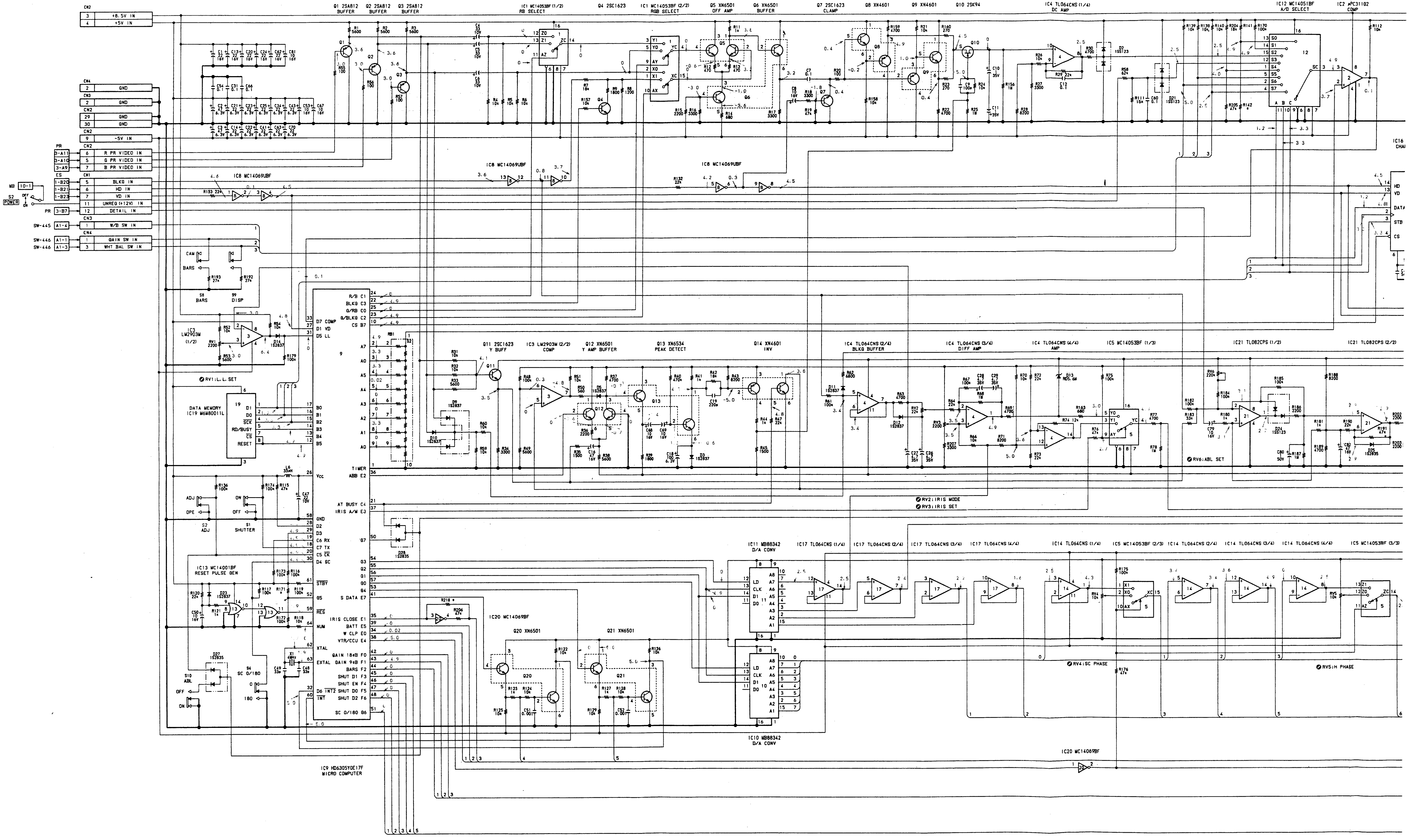
IC7-14 pin

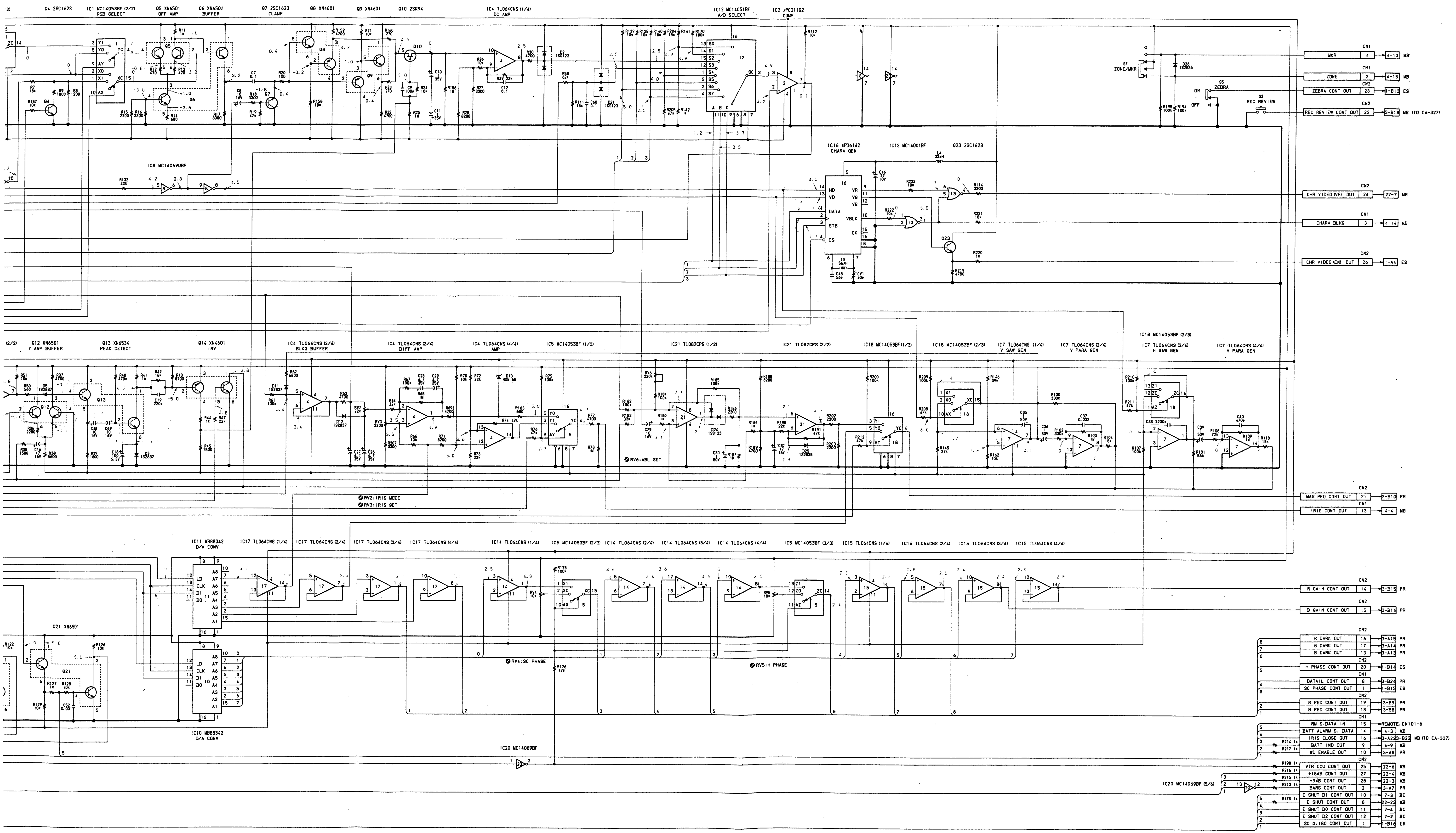


IC9-62 pin



AT-63 BOARD


Q1 2SA812 BUFFER
Q2 2SA812 BUFFER
Q3 2SA812 BUFFER
IC1 MC14053BF (1/2) RB SELECT
Q4 2SC1623
IC1 MC14053BF (2/2) RGB SELECT
Q5 XN6501 OFF AMP
Q6 XN6501 BUFFER
Q7 2SC1623 CLAMP
Q8 XN4601
Q9 XN4601
Q10 2SK94
IC4 TL064CNS (1/4) DC AMP
IC12 MC14051BF A/D SELECT
IC2 μPC311G2 COMP
+8.5V IN
+5V IN
GND
-5V IN
R PR VIDEO IN
G PR VIDEO IN
B PR VIDEO IN
BLKG IN
HD IN
VD IN
UNREG (+12V) IN
DETAIL IN
W/B SW IN
GAIN SW IN
WHT BAL SW IN
S2 POWER
IC8 MC14069UBF
IC3 LM2903M (1/2)
RV1:L.L SET
DATA MEMORY IC19 M6M80011L
IC13 MC14001BF RESET PULSE GEN
S8 BARS
S9 DISP
S2 ADJ
S1 SHUTTER
S10 ABL
S4 SC 0/180
Q11 2SC1623 Y BUFF
IC3 LM2903M (2/2) COMP
Q12 XN6501 Y AMP BUFFER
Q13 XN6534 PEAK DETECT
Q14 XN4601 INV
IC4 TL064CNS (2/4) BLKG BUFFER
IC4 TL064CNS (3/4) DIFF AMP
IC4 TL064CNS (4/4) AMP
IC5 MC14053BF (1/3)
IC21 TL082CPS (1/2)
IC21 TL082CPS (2/2)
RV6:ABL SET
RV2:IRIS MODE
RV3:IRIS SET
IC20 MC14069BF
Q20 XN6501
Q21 XN6501
IC9 HD6305Y0E17F MICRO COMPUTER
IC11 MB88342 D/A CONV
IC10 MB88342 D/A CONV
IC17 TL064CNS (1/4)
IC17 TL064CNS (2/4)
IC17 TL064CNS (3/4)
IC17 TL064CNS (4/4)
IC14 TL064CNS (1/4)
IC5 MC14053BF (2/3)
IC14 TL064CNS (2/4)
IC14 TL064CNS (3/4)
IC14 TL064CNS (4/4)
IC5 MC14053BF (3/3)
RV4:SC PHASE
RV5:H PHASE
IC20 MC14069BF
IC16


Q4 2SC1623
IC1 MC14053BF (2/2) RGB SELECT
Q5 XN6501 OFF AMP
Q6 XN6501 BUFFER
Q7 2SC1623 CLAMP
Q8 XN4601
Q9 XN4601
Q10 2SK94
IC4 TL064CNS (1/4) DC AMP
IC12 MC14051BF A/D SELECT
IC2 μPC311G2 COMP
IC8 MC14069UBF
IC16 μPD6142 CHARA GEN
IC13 MC14001BF
Q23 2SC1623
S7 ZONE/MKR
D26 1S2835
S5 ZEBRA
ON
OFF
S3 REC REVIEW
CN1
MKR
4
4-13
MB
ZONE
2
4-15
CN2
ZEBRA CONT OUT
23
1-B13
ES
REC REVIEW CONT OUT
22
3-B18
MB (TO CA-327)
CHR VIDEO (VF) OUT
24
22-7
CHARA BLKG
3
4-14
CHR VIDEO (EN) OUT
26
1-A4
Q12 XN6501 Y AMP BUFFER
Q13 XN6534 PEAK DETECT
Q14 XN4601 INV
IC4 TL064CNS (2/4) BLKG BUFFER
IC4 TL064CNS (3/4) DIFF AMP
IC4 TL064CNS (4/4) AMP
IC5 MC14053BF (1/3)
IC21 TL082CPS (1/2)
IC21 TL082CPS (2/2)
IC18 MC14053BF (1/3)
IC18 MC14053BF (2/3)
IC7 TL064CNS (1/4) V SAW GEN
IC7 TL064CNS (2/4) V PARA GEN
IC18 MC14053BF (3/3)
IC7 TL064CNS (3/4) H SAW GEN
IC7 TL064CNS (4/4) H PARA GEN
RV6: ABL SET
RV2: IRIS MODE
RV3: IRIS SET
MAS PED CONT OUT
21
3-B10
PR
IRIS CONT OUT
13
4-4
IC11 MB88342 D/A CONV
IC17 TL064CNS (1/4)
IC17 TL064CNS (2/4)
IC17 TL064CNS (3/4)
IC17 TL064CNS (4/4)
IC14 TL064CNS (1/4)
IC5 MC14053BF (2/3)
IC14 TL064CNS (2/4)
IC14 TL064CNS (3/4)
IC14 TL064CNS (4/4)
IC5 MC14053BF (3/3)
IC15 TL064CNS (1/4)
IC15 TL064CNS (2/4)
IC15 TL064CNS (3/4)
IC15 TL064CNS (4/4)
RV4: SC PHASE
RV5: H PHASE
Q21 XN6501
IC10 MB88342 D/A CONV
IC20 MC14069BF
IC20 MC14069BF (5/6)
R GAIN CONT OUT
14
3-B15
B GAIN CONT OUT
15
3-B14
R DARK OUT
16
3-A15
G DARK OUT
17
3-A14
B DARK OUT
13
3-A13
H PHASE CONT OUT
20
1-B14
DATAIL CONT OUT
8
3-B24
SC PHASE CONT OUT
1
1-B15
R PED CONT OUT
19
3-B9
B PED CONT OUT
18
3-B8
RM S.DATA IN
15
REMOTE, CN101-6
BATT ALARM S. DATA
14
4-3
IRIS CLOSE OUT
16
3-A22 3-B22
BATT IND OUT
9
4-9
WC ENABLE OUT
10
3-A8
R214 1k
R217 1k
R198 1k
R216 1k
R215 1k
R213 1k
R178 1k
VTR CCU CONT OUT
25
22-6
+18dB CONT OUT
27
22-4
+9dB CONT OUT
28
22-3
BARS CONT OUT
2
3-A7
E SHUT D1 CONT OUT
10
7-3
BC
E SHUT CONT OUT
8
22-23
E SHUT D0 CONT OUT
11
7-4
E SHUT D2 CONT OUT
12
7-2
SC 0:180 CONT OUT
1
1-B16

1

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3

4

5

6

AT-63 BOARD

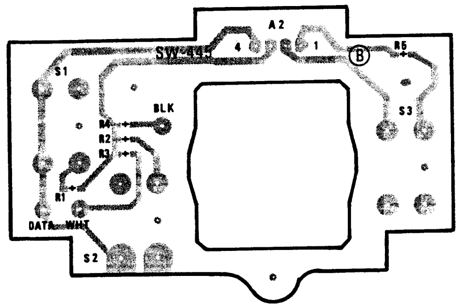
DXC-327 (J, UC)
DXC-327P (EK)

C-52 C-53

| D | E | F | G | H | I

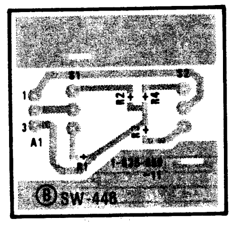
B-DXC327-AT63/M

SW-445 BOARD


SW-445
A2
S1
S2
S3
R5
BLK
DATA
WHT
R1
Ⓑ

1-636-658-11 SOLDERING SIDE

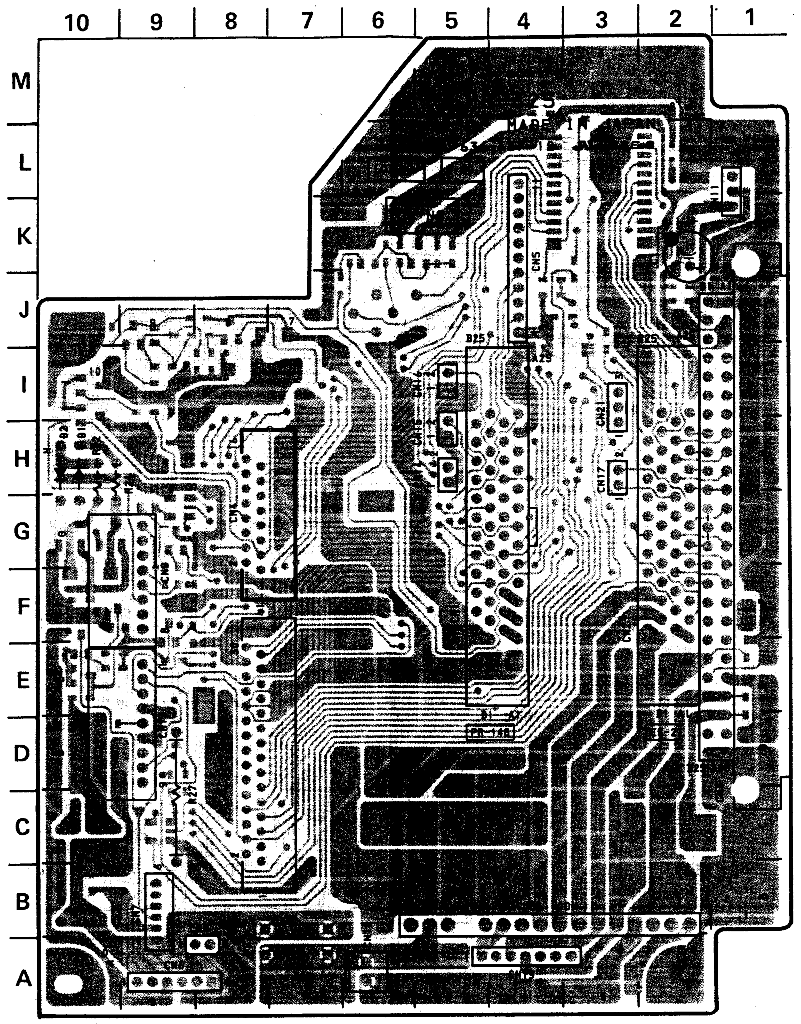
SW-446 BOARD


S1
S2
A1
Ⓑ SW-446

1-636-659-11 SOLDERING SIDE

MB-325 BOARD

MB-325 (1-636-657-12)	
CN1	F-5
CN2	F-3
CN3	C-1
CN4	G-8
CN5	L-5
CN6	A-9
CN7	B-9
CN8	B-8
CN9	F-9
CN10	A-6
CN11	K-1
CN13	D-9
CN14	H-6
CN15	H-6
CN16	I-6
CN17	H-4
CN19	A-4
CN21	I-4
CN22	D-8
D1	H-10
D2	H-10
D3	E-10
IC1	C-9
IC2	H-9
IC3	K-2
Q1	I-10
Q2	I-10
Q3	G-9
Q4	H-9
Q5	F-9
Q6	F-10
Q7	F-10
Q8	G-10
Q9	G-10
Q10	J-5
Q11	K-6
Q12	J-8
Q13	I-9
Q14	I-9
S1	J-5
S2	J-7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8
7
6
5
4
3
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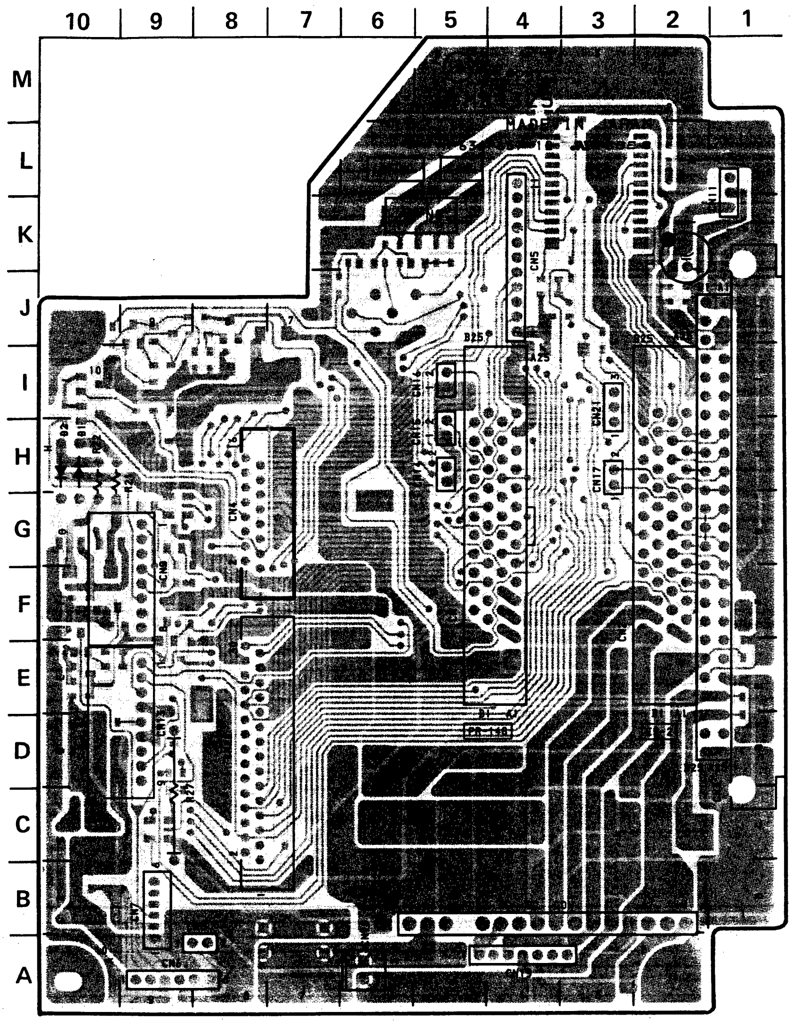
1
M
L
K
J
I
H
G
F
E
D
C
B
A
CN5
CN21
CN17

1-636-657-11, 12 COMPONENT SIDE

MB-325 BOARD

MB-325 (1-636-657-12)

CN1	F-5
CN2	F-3
CN3	C-1
CN4	G-8
CN5	L-5
CN6	A-9
CN7	B-9
CN8	B-8
CN9	F-9
CN10	A-6
CN11	K-1
CN13	D-9
CN14	H-6
CN15	H-6
CN16	I-6
CN17	H-4
CN19	A-4
CN21	I-4
CN22	D-8
D1	H-10
D2	H-10
D3	E-10
IC1	C-9
IC2	H-9
IC3	K-2
Q1	I-10
Q2	I-10
Q3	G-9
Q4	H-9
Q5	F-9
Q6	F-10
Q7	F-10
Q8	G-10
Q9	G-10
Q10	J-5
Q11	K-6
Q12	J-8
Q13	I-9
Q14	I-9
S1	J-5
S2	J-7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L
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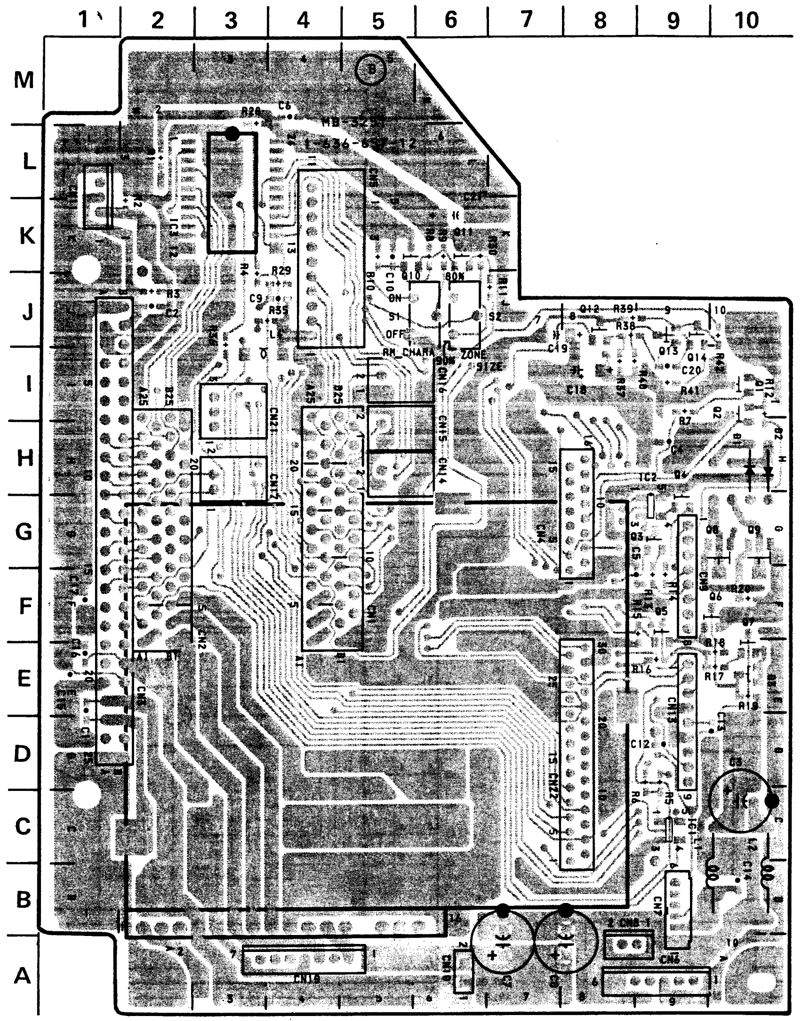
A

1-636-657-11, 12 COMPONENT SIDE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M
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K
J
I
H
G
F
E
D
C
B
A
ON
OFF
RR CHANA
ZONE
S1
S2

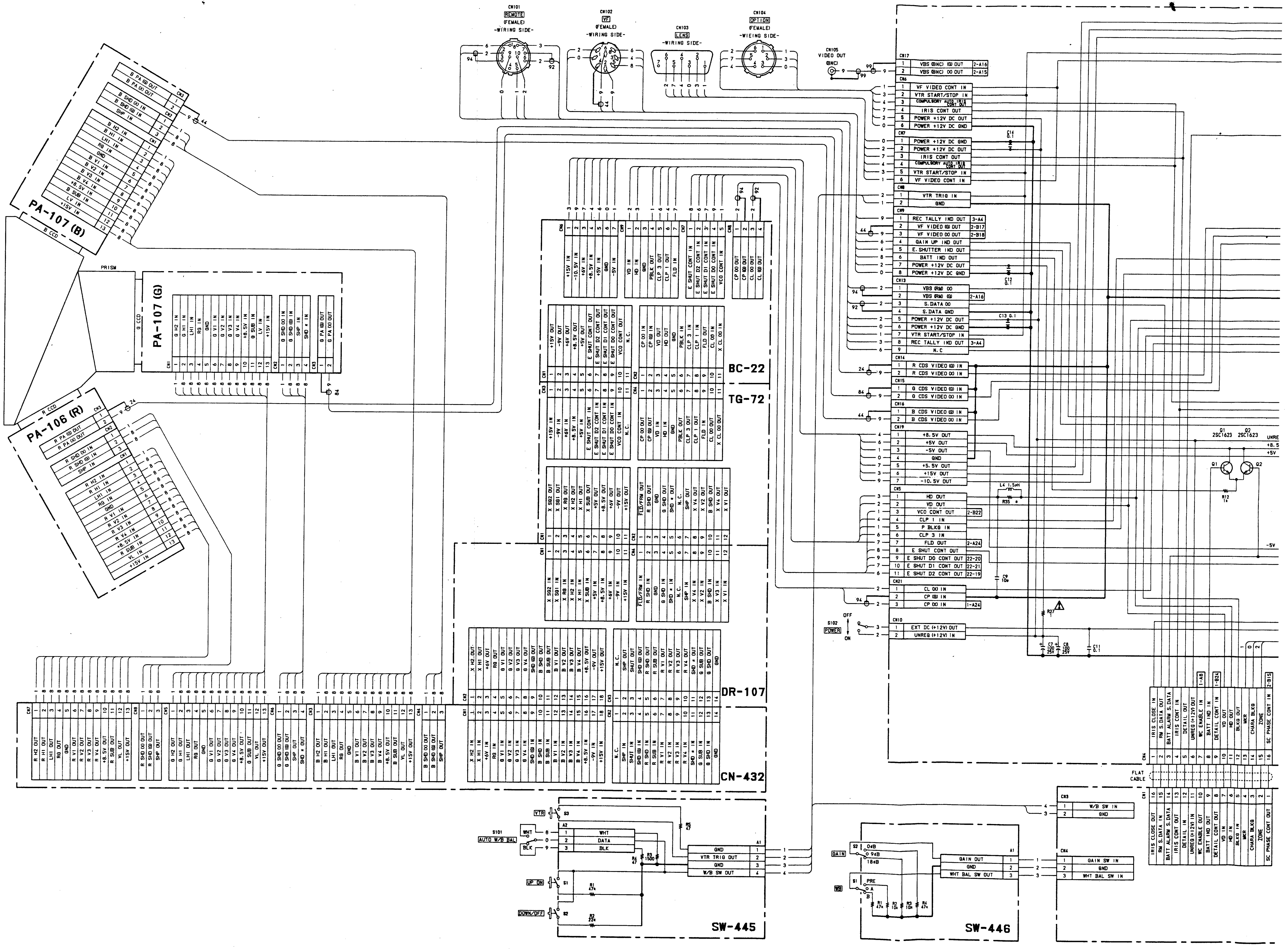
1-636-657-11, 12 SOLDERING SIDE

MB-325 (1-636-657-12)

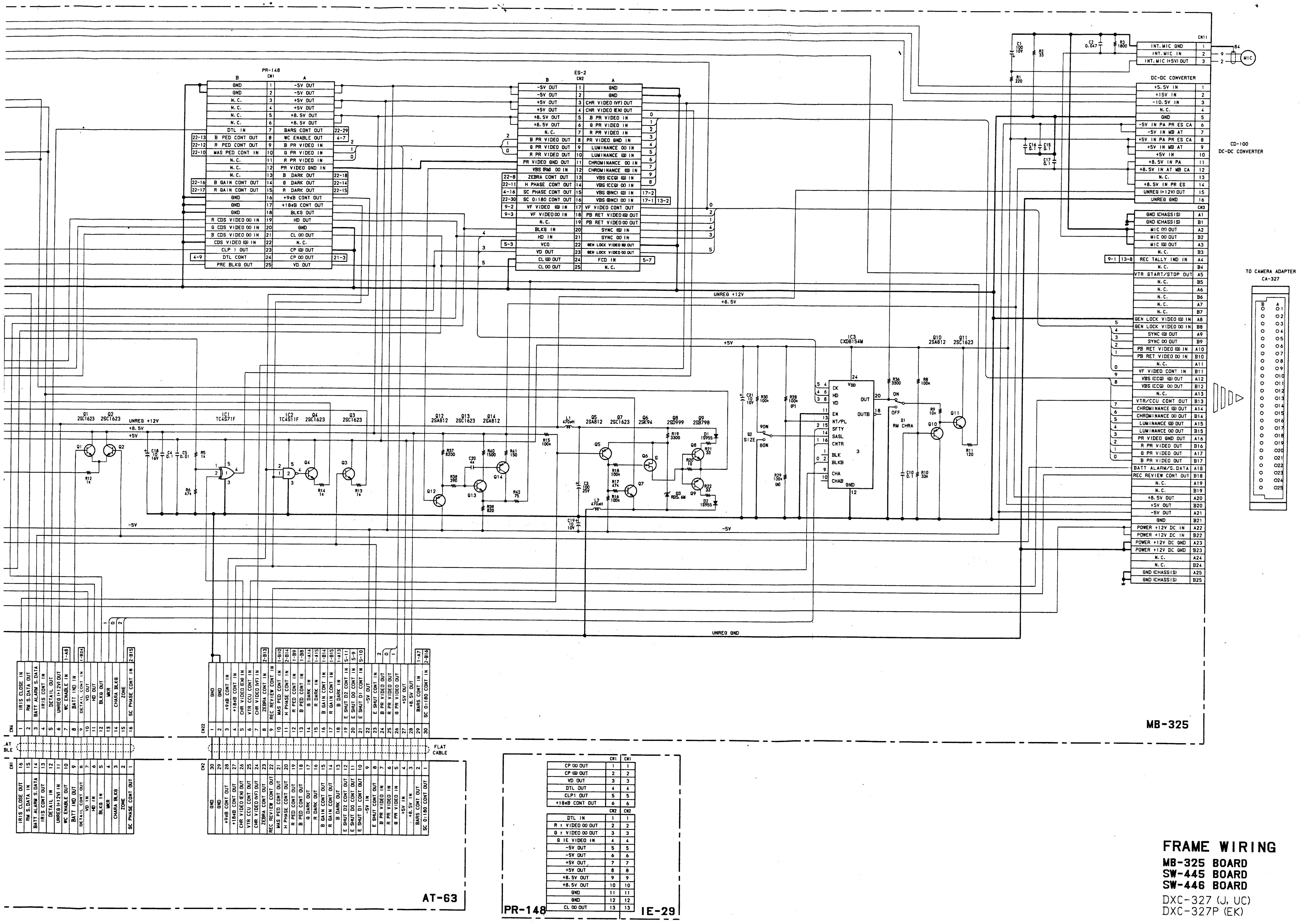
CN1	F-5
CN2	F-3
CN3	C-1
CN4	G-8
CN5	L-5
CN6	A-9
CN7	B-9
CN8	B-8
CN9	F-9
CN10	A-6
CN11	K-1
CN13	D-9
CN14	H-6
CN15	H-6
CN16	I-6
CN17	H-4
CN19	A-4
CN21	I-4
CN22	D-8
D1	H-10
D2	H-10
D3	E-10
IC1	C-9
IC2	H-9
IC3	K-2
Q1	I-10
Q2	I-10
Q3	G-9
Q4	H-9
Q5	F-9
Q6	F-10
Q7	F-10
Q8	G-10
Q9	G-10
Q10	J-5
Q11	K-6
Q12	J-8
Q13	I-9
Q14	I-9
S1	J-5
S2	J-7

FRAME

MB-325 BOARD
SW-445 BOARD
SW-446 BOARD


PA-107 (B)
PA-107 (G)
PA-106 (R)
PRISM
B CCD
G CCD
R CCD
CN101 REMOTE (FEMALE) -WIRING SIDE-
CN102 VF (FEMALE) -WIRING SIDE-
CN103 LENS -WIRING SIDE-
CN104 OPTION (FEMALE) -WIRING SIDE-
CN105 VIDEO OUT (BNC)
BC-22
TG-72
DR-107
CN-432
SW-445
SW-446
S101 AUTO W/B BAL
S102 POWER
VTR
UP ON
DOWN/OFF
GAIN
WB
FLAT CABLE
Q1 2SC1623
Q2 2SC1623
VBS (BNC) (G) OUT
VBS (BNC) (X) OUT
VF VIDEO CONT IN
VTR START/STOP IN
IRIS CONT OUT
POWER +12V DC OUT
POWER +12V DC GND
VTR TRIG IN
REC TALLY IND OUT
GAIN UP IND OUT
E.SHUTTER IND OUT
BATT IND OUT
R CDS VIDEO (G) IN
G CDS VIDEO (G) IN
B CDS VIDEO (G) IN
EXT DC (+12V) OUT
UNREG (+12V) IN
WHT
DATA
BLK
GND
VTR TRIG OUT
W/B SW OUT
GAIN OUT
WHT BAL SW OUT
W/B SW IN
GAIN SW IN
WHT BAL SW IN

DXC-327 (J, UC)
DXC-327P (EK)


PR-148
CN1
ES-2
CN2
CN11
INT. MIC GND
INT. MIC IN
INT. MIC (+5V) OUT
MIC
DC-DC CONVERTER
CD-100
DC-DC CONVERTER
CN3
TO CAMERA ADAPTER
CA-327
UNREG +12V
+8.5V
+5V
-5V
UNREG GND
IC1
TC4S71F
IC2
TC4S11F
IC3
CXD8154M
Q1 2SC1623
Q2 2SC1623
Q3 2SC1623
Q4 2SC1623
Q5 2SA812
Q6 2SK94
Q7 2SC1623
Q8 2SD999
Q9 2SB798
Q10 2SA812
Q11 2SC1623
Q12 2SA812
Q13 2SC1623
Q14 2SA812
S1
RM CHRA
S2
SIZE
ON
OFF
90N
80N
MB-325
CN4
CN22
FLAT CABLE
CN1
CN2
AT-63
PR-148
IE-29
1
2
3
4
5
6
G
H
I
J
K
M

FRAME WIRING

MB-325 BOARD
SW-445 BOARD
SW-446 BOARD
DXC-327 (J, UC)
DXC-327P (EK)

SECTION D
SPARE PARTS

PARTS INFORMATION

1. **Safety Related Component Warning**

   Components indentified by shading marked with ⚠ on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation. Replace these components with Sony parts whose parts numbers appear as shown in this manual or in service manual supplements published by Sony.

2. Replacement Parts supplied from Sony Parts Center will sometimes have different shape and outside view from the parts which actually in use. This is due to **"accommodating the improved parts and/or engineering changes" or "standardization of genuine parts."** This manual 's exploded view and electrical spare parts lists are indicating the parts numbers of "the standardized genuine parts at present." Regarding engineering parts and diagrams changes in our engineering department, refer to SONY service bulletins and service manual supplements.

3. The parts marked with "S" in the SP column of the exploded views and electrical spare parts list are normally required for routine service work. Orders for parts marked with "O" will be processed, but allow for additional delivery time.

4. Item with no parts number and/or no description are not stocked because they are seldom required for routine service.

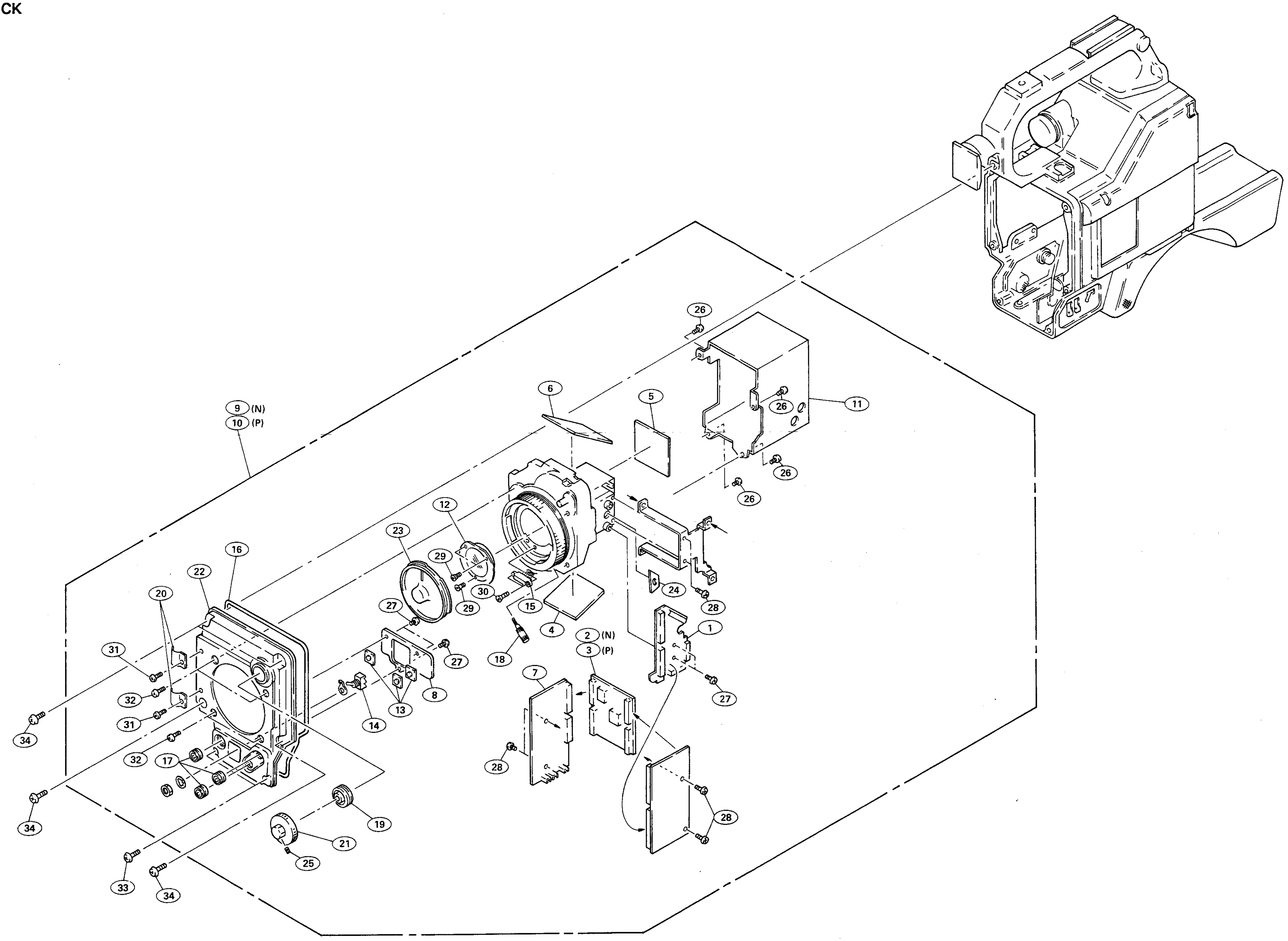
5. All capacitors are in micro farads unless otherwise specified.
   All inductors are in micro henries unless otherwise specified.
   All resistors are in ohms.

EXPLODED VIEW

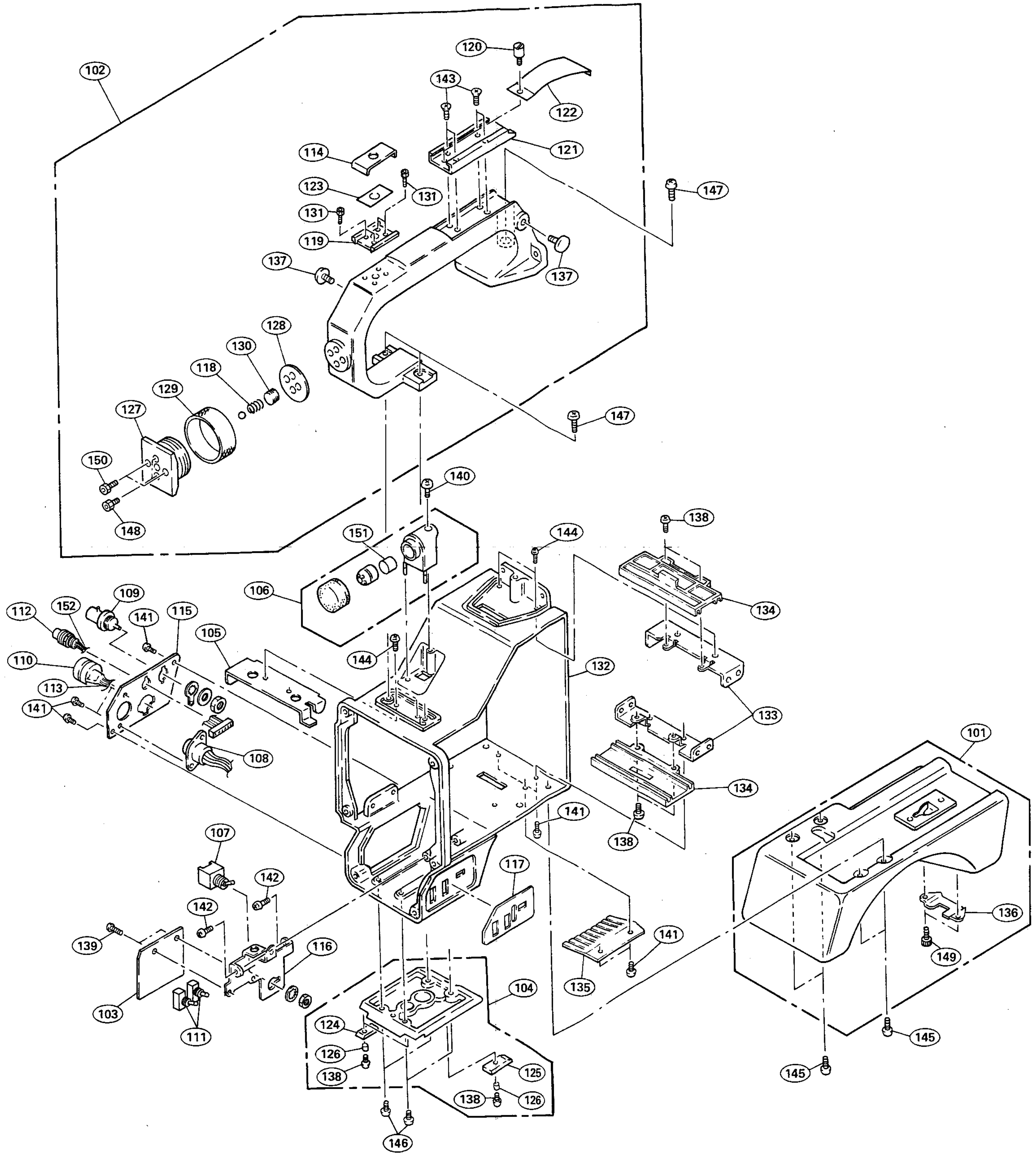
CCD BLOCK

No.	Part No.	SP	Description
1	A-7515-210-A	o	MOUNTED CIRCUIT BOARD, CN-432
2	A-7515-216-A	o	MOUNTED CIRCUIT BOARD, TG-72(N) (for DXC-327)
3	A-7515-217-A	o	MOUNTED CIRCUIT BOARD, TG-72(P) (for DXC-327P)
4	A-7515-218-A	o	MOUNTED CIRCUIT BOARD, PA-106
5	A-7515-219-A	o	MOUNTED CIRCUIT BOARD, PA-107G
6	A-7515-220-A	o	MOUNTED CIRCUIT BOARD, PA-107B
7	A-7515-221-A	o	MOUNTED CIRCUIT BOARD, BC-22
8	A-7520-515-A	o	MOUNTED CIRCUIT BOARD, SW-445
9	A-7575-155-A	s	CCD UNIT (N) (for DXC-327)
10	A-7575-156-A	s	CCD UNIT (P) (for DXC-327P)
11	X-3165-232-1	o	COVER ASSY, BLOCK SHIELD
12	1-547-463-11	o	FILTER UNIT, OPTICAL
13	1-553-739-21	s	SWITCH, KEY BOARD
14	1-554-486-00	s	SWITCH, TOGGLE "AUTO W/B BAL"
15	1-942-381-12	s	HARNESS (LENS)
16	3-672-253-11	o	RUBBER, CONDUCTIVE
17	3-676-244-00	s	COVER, SWITCH
18	3-678-629-00	s	LEVER, MOUNT
19	3-678-632-00	o	PACKING, KNOB
20	3-678-684-00	o	HOLDER, CABLE
21	3-699-047-01	s	KNOB, FILTER
22	3-699-106-01	o	PANEL, FRONT
23	3-699-144-01	s	CAP, MOUNT
24	3-699-182-01	o	INSULATOR (2)
25	3-701-506-01	s	SET SCREW, DOUBLE POINT 3X4
26	7-621-770-87	s	SCREW +B 2.6X5
27	7-621-772-18	s	SCREW +B 2X4
28	7-621-773-86	s	SCREW +B 2.6X4
29	7-627-452-28	s	SCREW, PRECISION +K 2X4
30	7-627-552-48	s	SCREW, PRECISION +P 1.7X4
31	7-627-556-38	s	SCREW +P 2.6X4.0
32	7-682-547-04	s	SCREW +B 3X6
33	7-682-549-09	s	SCREW +B 3X10
34	7-682-550-09	s	SCREW +B 3X12

CCD BLOCK


9 (N)
10 (P)
2 (N)
3 (P)

CHASSIS (1) BLOCK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143
102
122
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114
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152
112
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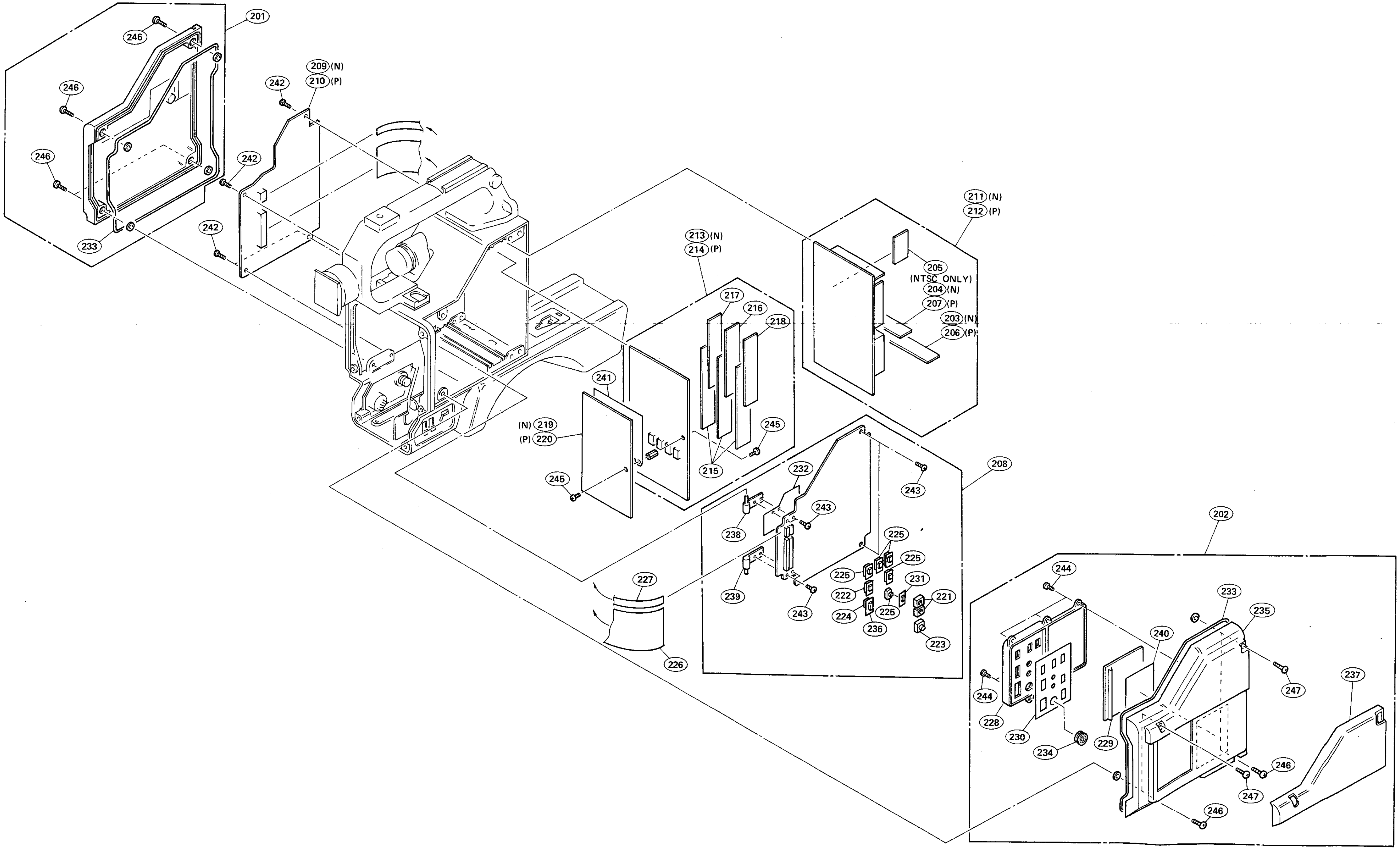
CHASSIS (1) BLOCK

No.	Part No.	SP	Description
101	A-7420-147-B	s	PAD ASSY, SHOULDER
102	A-7420-197-A	o	HANDLE ASSY
103	A-7520-516-A	o	MOUNTED CIRCUIT BOARD, SW-446
104	X-3664-212-2	s	SHOE ASSY (B), T
105	X-3699-015-1	o	BRACKET(B) ASSY
106	1-542-112-11	s	MICROPHONE (C-2025)
107	1-553-972-00	s	SWITCH, TOGGLE "POWER"
108	1-561-320-12	s	SOCKET, DIN 8P "VF"
109	1-561-781-11	s	CONNECTOR, BNC "VIDEO OUT"
110	1-562-782-21	s	CONNECTOR 10P FEMALE "REMOTE"
111	1-570-985-11	s	SWITCH, TOGGLE "GAIN" "WB"
112	1-942-381-12	s	HARNESS (LENS)
113	1-946-627-11	o	HARNESS (RM)
114	2-277-468-01	o	PLATE, ORNAMENTAL, CAMERA SHOE
115	3-166-292-01	o	PLATE, CONNECTOR
116	3-166-293-01	o	STOPPER, PC BOARD
117	3-166-298-01	o	LABEL, SW
118	3-641-622-00	s	SPRING, COMPRESSION
119	3-657-700-00	s	BRACKET, ACCESSORY
120	3-664-213-00	o	SCREW, STOPPER
121	3-664-218-00	o	SHUE
122	3-664-228-00	o	PLATE, SPRING
123	3-672-213-00	o	SHEET, ADHESIVE
124	3-675-963-02	s	FOOT, FRONT, RUBBER
125	3-675-964-01	s	FOOT, REAR, RUBBER
126	3-675-965-01	s	SPACER (2.6X2)
127	3-682-718-02	o	SHOE, VF SLIDE
128	3-682-758-01	o	SPACER
129	3-682-759-01	o	RING, LOCK
130	3-682-760-01	o	SCREW (M7-0.75), ADJUSTMENT
131	3-689-039-11	s	BOLT (M2X6), HOLE, HEXAGON
132	3-699-104-01	o	CABINET
133	3-699-110-01	o	BRACKET (A)
134	3-699-131-01	o	GUIDE, PC BOARD
135	3-699-145-01	o	PLATE, GROUND
136	3-699-176-01	o	STOPPER (2)
137	3-725-907-01	s	BUSHING, BLIND
138	7-621-770-87	s	SCREW +B 2.6X5
139	7-621-772-18	s	SCREW +B 2X4
140	7-621-772-30	s	SCREW +B 2X6
141	7-621-773-86	s	SCREW +B 2.6X4
142	7-621-775-20	s	SCREW +B 2.6X5
143	7-682-247-04	s	SCREW +K 3X6
144	7-682-546-09	s	SCREW +B 3X5
145	7-682-547-09	s	SCREW +B 3X6
146	7-682-561-09	s	SCREW +B 4X8
147	7-682-562-09	s	SCREW +B 4X10
148	7-683-410-04	s	BOLT,HEXAGON SOCKET 3X20
149	7-683-412-05	s	BOLT,HEXAGON SOCKET 2.6X6
150	7-683-425-04	s	BOLT,HEXAGON SOCKET 4X20
151	8-814-189-31	s	MICROPHONE, BUILT-IN (C-1007A)
152	1-562-222-41	o	CONNECTOR, 6P FEMALE "LENS"

CHASSIS (2) BLOCK

No.	Part No.	SP	Description
201	A-7420-143-A	o	PLATE (LEFT) ASSY, SIDE
202	A-7420-188-A	o	PLATE (RIGHT) ASSY, SIDE
203	A-7513-840-A	o	MOUNTED CIRCUIT BOARD, MX-18A(N) (for DXC-327)
204	A-7513-841-A	o	MOUNTED CIRCUIT BOARD, CM-22(N) (for DXC-327)
205	A-7513-842-A	o	MOUNTED CIRCUIT BOARD, BKG-4 (for DXC-327)
206	A-7513-844-A	o	MOUNTED CIRCUIT BOARD, MX-18A(P) (for DXC-327P)
207	A-7513-845-A	o	MOUNTED CIRCUIT BOARD, CM-22(P) (for DXC-327P)
208	A-7515-211-A	o	MOUNTED CIRCUIT BOARD, AT-63
209	A-7515-212-A	o	MOUNTED CIRCUIT BOARD, MB-325(N) (for DXC-327)
210	A-7515-213-A	o	MOUNTED CIRCUIT BOARD, MB-325(P) (for DXC-327P)
211	A-7515-214-A	o	MOUNTED CIRCUIT BOARD, ES-2(N) (for DXC-327)
212	A-7515-215-A	o	MOUNTED CIRCUIT BOARD, ES-2(P) (for DXC-327P)
213	A-7515-223-A	o	MOUNTED CIRCUIT BOARD, PR-148(N) (for DXC-327)
214	A-7515-224-A	o	MOUNTED CIRCUIT BOARD, PR-148(P) (for DXC-327P)
215	A-7515-225-A	o	MOUNTED CIRCUIT BOARD, PR-147
216	A-7515-226-A	o	MOUNTED CIRCUIT BOARD, VA-105R
217	A-7515-227-A	o	MOUNTED CIRCUIT BOARD, VA-105G
218	A-7515-228-A	o	MOUNTED CIRCUIT BOARD, VA-105B
219	A-7515-229-A	o	MOUNTED CIRCUIT BOARD, IE-29(N) (for DXC-327)
220	A-7515-230-A	o	MOUNTED CIRCUIT BOARD, IE-29(P) (for DXC-327P)
221	1-237-518-21	s	RES, ADJ, METAL 10K "PHASE SC/H"
222	1-553-977-00	s	SWITCH, SLIDE "MARKER"
223	1-554-303-21	s	SWITCH, KEY BOARD "REC REVIEW"
224	1-554-364-00	s	SWITCH, SLIDE "DISP CHG"
225	1-570-865-11	s	SWITCH, SLIDE "SHUTTER" "ZEBRA" "PHASE" "BARS"
226	1-574-145-11	s	WIRE, FLAT TYPE (30 CORE)
227	1-590-168-11	s	WIRE, FLAT TYPE (16 CORE)
228	3-166-294-01	o	FRAME, SLIDE DOOR
229	3-166-295-01	o	DOOR, SLIDE
230	3-166-296-01	o	PLATE, SWITCH
231	3-167-445-01	s	KNOB, SWITCH
232	3-168-689-01	o	PLATE (2) SHIELD AT
233	3-672-253-11	o	RUBBER, CONDUCTIVE
234	3-676-244-00	s	COVER, SWITCH
235	3-699-107-01	o	PLATE (RIGHT), SIDE
236	3-699-125-01	s	KNOB, DISPCHG
237	3-699-137-01	s	PAD (C), SIDE
238	3-699-170-01	o	BRACKET (UPPER), AT
239	3-699-171-01	o	BRACKET (LOWER), AT
240	3-699-172-01	o	SHEET, STOPPER
241	3-699-179-01	o	PLATE, SHIELD, IE
242	7-621-770-87	s	SCREW +B 2.6X5
243	7-621-772-18	s	SCREW +B 2X4
244	7-621-772-20	s	SCREW +B 2X5
245	7-621-775-08	s	SCREW +B 2.6X3
246	7-682-548-09	s	SCREW +B 3X8
247	7-682-553-09	s	SCREW +B 3X20

CHASSIS (2) BLOCK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211 (N)
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(NTSC ONLY)
204 (N)
207 (P)
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PACKING MATERIAL AND ACCESSORIES

DXC-327H/327PH

Part. No.	SP	Description
3-166-614-01	o	CARTON, INDIVIDUAL DXC-327H(UC)
3-166-615-01	o	CARTON, INDIVIDUAL DXC-327PH(EK)
3-699-154-01	o	CUSHION(LOWER)
3-699-157-01	o	CUSHION(UPPER)
3-752-391-11	s	MANUAL, INSTRUCTION(UC, EK)
3-759-391-31	s	MANUAL, INSTRUCTION(UC, EK)
3-759-391-41	s	MANUAL, INSTRUCTION(EK)
3-759-391-51	s	MANUAL, INSTRUCTION(EK)
3-752-391-61	s	MANUAL, INSTRUCTION(EK)
3-764-889-01	o	CHART, ADJUSTMENT

DXC-327L/327PL

Part. No.	SP	Description
3-166-618-01	o	CARTON, INDIVIDUAL DXC-327L(UC)
3-166-619-01	o	CARTON, INDIVIDUAL DXC-327PL(EK)
3-701-630-01	o	BAG, POLY
3-752-391-11	s	MANUAL, INSTRUCTION DXC-327L(UC)
3-752-391-31	s	MANUAL, INSTRUCTION DXC-327L(UC)
3-752-391-41	s	MANUAL, INSTRUCTION DXC-327PL(EK)
3-752-391-51	s	MANUAL, INSTRUCTION DXC-327PL(EK)
3-752-391-61	s	MANUAL, INSTRUCTION DXC-327PL(EK)
3-764-889-01	o	CHART, ADJUSTMENT

DXC-327K/327PK

Part. No.	SP	Description
3-166-616-01	o	CARTON, INDIVIDUAL DXC-327K(UC)
3-166-617-01	o	CARTON, INDIVIDUAL DXC-327PK(EK)
3-701-630-01	o	BAG, POLY
3-752-391-11	s	MANUAL, INSTRUCTION DXC-327K(UC)/DXC-327PK(EK)
3-752-391-31	s	MANUAL, INSTRUCTION DXC-327K(UC)/DXC-327PK(EK)
3-752-391-41	s	MANUAL, INSTRUCTION DXC-327PK(EK)
3-752-391-51	s	MANUAL, INSTRUCTION DXC-327PK(EK)
3-752-391-61	s	MANUAL, INSTRUCTION DXC-327PK(EK)
3-764-889-01	o	CHART, ADJUSTMENT
7-682-560-09	s	SCREW +B4x6
7-682-563-09	s	SCREW +B4x12

ELECTRICAL PARTS

RESISTOR, CHIP

Part No.	SP	Description
1-216-295-00	s	CHIP 0 5% 1/10W
1-216-298-00	s	CHIP 2.2 5% 1/10W
1-216-302-00	s	CHIP 2.7 5% 1/10W
1-216-304-00	s	CHIP 3.3 5% 1/10W
1-216-306-00	s	CHIP 3.9 5% 1/10W
1-216-308-00	s	CHIP 4.7 5% 1/10W
1-216-309-00	s	CHIP 5.6 5% 1/10W
1-216-311-00	s	CHIP 6.8 5% 1/10W
1-216-313-00	s	CHIP 8.2 5% 1/10W
1-216-001-00	s	CHIP 10 5% 1/10W
1-216-003-00	s	CHIP 12 5% 1/10W
1-216-005-00	s	CHIP 15 5% 1/10W
1-216-007-00	s	CHIP 18 5% 1/10W
1-216-009-00	s	CHIP 22 5% 1/10W
1-216-011-00	s	CHIP 27 5% 1/10W
1-216-013-00	s	CHIP 33 5% 1/10W
1-216-015-00	s	CHIP 39 5% 1/10W
1-216-017-00	s	CHIP 47 5% 1/10W
1-216-019-00	s	CHIP 56 5% 1/10W
1-216-021-00	s	CHIP 68 5% 1/10W
1-216-023-00	s	CHIP 82 5% 1/10W
1-216-025-00	s	CHIP 100 5% 1/10W
1-216-027-00	s	CHIP 120 5% 1/10W
1-216-029-00	s	CHIP 150 5% 1/10W
1-216-031-00	s	CHIP 180 5% 1/10W
1-216-033-00	s	CHIP 220 5% 1/10W
1-216-035-00	s	CHIP 270 5% 1/10W
1-216-037-00	s	CHIP 330 5% 1/10W
1-216-039-00	s	CHIP 390 5% 1/10W
1-216-041-00	s	CHIP 470 5% 1/10W
1-216-043-00	s	CHIP 560 5% 1/10W
1-216-045-00	s	CHIP 680 5% 1/10W
1-216-047-00	s	CHIP 820 5% 1/10W
1-216-049-00	s	CHIP 1k 5% 1/10W
1-216-051-00	s	CHIP 1.2k 5% 1/10W
1-216-053-00	s	CHIP 1.5k 5% 1/10W
1-216-055-00	s	CHIP 1.8k 5% 1/10W
1-216-057-00	s	CHIP 2.2k 5% 1/10W
1-216-059-00	s	CHIP 2.7k 5% 1/10W
1-216-061-00	s	CHIP 3.3k 5% 1/10W
1-216-063-00	s	CHIP 3.9k 5% 1/10W
1-216-065-00	s	CHIP 4.7k 5% 1/10W
1-216-067-00	s	CHIP 5.6k 5% 1/10W
1-216-069-00	s	CHIP 6.8k 5% 1/10W
1-216-071-00	s	CHIP 8.2k 5% 1/10W
1-216-073-00	s	CHIP 10k 5% 1/10W
1-216-075-00	s	CHIP 12k 5% 1/10W
1-216-077-00	s	CHIP 15k 5% 1/10W
1-216-079-00	s	CHIP 18k 5% 1/10W
1-216-081-00	s	CHIP 22k 5% 1/10W
1-216-083-00	s	CHIP 27k 5% 1/10W
1-216-085-00	s	CHIP 33k 5% 1/10W
1-216-087-00	s	CHIP 39k 5% 1/10W
1-216-089-00	s	CHIP 47k 5% 1/10W
1-216-091-00	s	CHIP 56k 5% 1/10W
1-216-093-00	s	CHIP 68k 5% 1/10W
1-216-095-00	s	CHIP 82k 5% 1/10W
1-216-097-00	s	CHIP 100k 5% 1/10W
1-216-099-00	s	CHIP 120k 5% 1/10W
1-216-101-00	s	CHIP 150k 5% 1/10W

(RESISTOR, CHIP)

Part No.	SP	Description
1-216-103-00	s	CHIP 180k 5% 1/10W
1-216-105-00	s	CHIP 220k 5% 1/10W
1-216-107-00	s	CHIP 270k 5% 1/10W
1-216-109-00	s	CHIP 330k 5% 1/10W
1-216-111-00	s	CHIP 390k 5% 1/10W
1-216-113-00	s	CHIP 470k 5% 1/10W
1-216-115-00	s	CHIP 560k 5% 1/10W
1-216-117-00	s	CHIP 680k 5% 1/10W
1-216-119-00	s	CHIP 820k 5% 1/10W
1-216-121-00	s	CHIP 1.0M 5% 1/10W
1-216-123-00	s	CHIP 1.2M 5% 1/10W
1-216-125-00	s	CHIP 1.5M 5% 1/10W
1-216-127-00	s	CHIP 1.8M 5% 1/10W
1-216-129-00	s	CHIP 2.2M 5% 1/10W
1-216-131-00	s	CHIP 2.7M 5% 1/10W
1-216-133-00	s	CHIP 3.3M 5% 1/10W

CAPACITOR, CHIP CERAMIC

Part No.	SP	Description
1-163-083-00	s	CHIP CERAMIC 1pF +-0.25pF 50V
1-163-085-00	s	CHIP CERAMIC 2pF +-0.25pF 50V
1-163-087-00	s	CHIP CERAMIC 4pF +-0.25pF 50V
1-163-089-00	s	CHIP CERAMIC 6pF +-0.5pF 50V
1-163-091-00	s	CHIP CERAMIC 8pF +-0.5pF 50V
1-163-093-00	s	CHIP CERAMIC 10pF 5% 50V
1-163-097-00	s	CHIP CERAMIC 15pF 5% 50V
1-163-101-00	s	CHIP CERAMIC 22pF 5% 50V
1-163-105-00	s	CHIP CERAMIC 33pF 5% 50V
1-163-109-00	s	CHIP CERAMIC 47pF 5% 50V
1-163-113-00	s	CHIP CERAMIC 68pF 5% 50V
1-163-117-00	s	CHIP CERAMIC 100pF 5% 50V
1-163-121-00	s	CHIP CERAMIC 150pF 5% 50V
1-163-125-00	s	CHIP CERAMIC 220pF 5% 50V
1-163-129-00	s	CHIP CERAMIC 330pF 5% 50V
1-163-133-00	s	CHIP CERAMIC 470pF 5% 50V
1-163-137-00	s	CHIP CERAMIC 680pF 5% 50V
1-163-141-00	s	CHIP CERAMIC 1000pF 5% 50V
1-163-145-00	s	CHIP CERAMIC 1500pF 10% 50V
1-163-013-00	s	CHIP CERAMIC 2200pF 10% 50V
1-163-015-00	s	CHIP CERAMIC 3300pF 10% 50V
1-163-017-00	s	CHIP CERAMIC 4700pF 10% 50V
1-163-019-00	s	CHIP CERAMIC 6800pF 10% 50V
1-163-021-00	s	CHIP CERAMIC 0.01 10% 50V
1-163-023-00	s	CHIP CERAMIC 0.015 10% 50V
1-163-034-00	s	CHIP CERAMIC 0.033 50V
1-163-035-00	s	CHIP CERAMIC 0.047 50V
1-163-036-00	s	CHIP CERAMIC 0.068 50V
1-163-038-00	s	CHIP CERAMIC 0.1 50V

RESISTOR, CHIP METAL

Part No.	SP	Description
1-216-603-11	s	CHIP METAL 10 1% 1/10W
1-216-605-11	s	CHIP METAL 12 1% 1/10W
1-216-609-11	s	CHIP METAL 18 1% 1/10W
1-216-611-11	s	CHIP METAL 22 1% 1/10W
1-216-614-11	s	CHIP METAL 30 1% 1/10W
1-216-617-11	s	CHIP METAL 39 1% 1/10W
1-216-619-11	s	CHIP METAL 47 1% 1/10W
1-216-620-11	s	CHIP METAL 51 1% 1/10W
1-216-623-11	s	CHIP METAL 68 1% 1/10W
1-216-624-11	s	CHIP METAL 75 1% 1/10W
1-216-625-11	s	CHIP METAL 82 1% 1/10W
1-216-626-11	s	CHIP METAL 91 1% 1/10W
1-216-627-11	s	CHIP METAL 100 1% 1/10W
1-216-629-11	s	CHIP METAL 120 1% 1/10W
1-216-631-11	s	CHIP METAL 150 1% 1/10W
1-216-633-11	s	CHIP METAL 180 1% 1/10W
1-216-634-11	s	CHIP METAL 200 1% 1/10W
1-216-635-11	s	CHIP METAL 220 1% 1/10W
1-216-636-11	s	CHIP METAL 240 1% 1/10W
1-216-637-11	s	CHIP METAL 270 1% 1/10W
1-216-638-11	s	CHIP METAL 300 1% 1/10W
1-216-639-11	s	CHIP METAL 330 1% 1/10W
1-216-640-11	s	CHIP METAL 360 1% 1/10W
1-216-641-11	s	CHIP METAL 390 1% 1/10W
1-216-642-11	s	CHIP METAL 430 1% 1/10W
1-216-643-11	s	CHIP METAL 470 1% 1/10W
1-216-644-11	s	CHIP METAL 510 1% 1/10W
1-216-645-11	s	CHIP METAL 560 1% 1/10W
1-216-647-11	s	CHIP METAL 680 1% 1/10W
1-216-648-11	s	CHIP METAL 750 1% 1/10W
1-216-649-11	s	CHIP METAL 820 1% 1/10W
1-216-650-11	s	CHIP METAL 910 1% 1/10W
1-216-651-11	s	CHIP METAL 1.0k 1% 1/10W
1-216-652-11	s	CHIP METAL 1.1k 1% 1/10W
1-216-653-11	s	CHIP METAL 1.2k 1% 1/10W
1-216-655-11	s	CHIP METAL 1.5k 1% 1/10W
1-216-656-11	s	CHIP METAL 1.6k 1% 1/10W
1-216-657-11	s	CHIP METAL 1.8k 1% 1/10W
1-216-658-11	s	CHIP METAL 2k 1% 1/10W
1-216-659-11	s	CHIP METAL 2.2k 1% 1/10W
1-216-660-11	s	CHIP METAL 2.4k 1% 1/10W
1-216-661-11	s	CHIP METAL 2.7k 1% 1/10W
1-216-662-11	s	CHIP METAL 3k 1% 1/10W
1-216-663-11	s	CHIP METAL 3.3k 1% 1/10W
1-216-664-11	s	CHIP METAL 3.5k 1% 1/10W
1-216-665-11	s	CHIP METAL 3.9k 1% 1/10W
1-216-666-11	s	CHIP METAL 4.3k 1% 1/10W
1-216-667-11	s	CHIP METAL 4.7k 1% 1/10W
1-216-668-11	s	CHIP METAL 5.1k 1% 1/10W
1-216-669-11	s	CHIP METAL 5.6k 1% 1/10W
1-216-670-11	s	CHIP METAL 6.2k 1% 1/10W
1-216-671-11	s	CHIP METAL 6.8k 1% 1/10W
1-216-672-11	s	CHIP METAL 7.5k 1% 1/10W
1-216-673-11	s	CHIP METAL 8.2k 1% 1/10W
1-216-674-11	s	CHIP METAL 9.1k 1% 1/10W
1-216-675-11	s	CHIP METAL 10k 1% 1/10W
1-216-676-11	s	CHIP METAL 11k 1% 1/10W
1-216-677-11	s	CHIP METAL 12k 1% 1/10W
1-216-678-11	s	CHIP METAL 13k 1% 1/10W
1-216-679-11	s	CHIP METAL 15k 1% 1/10W

(RESISTOR, CHIP METAL)

Part No.	SP	Description
1-216-680-11	s	CHIP METAL 16k 1% 1/10W
1-216-681-11	s	CHIP METAL 18k 1% 1/10W
1-216-682-11	s	CHIP METAL 20k 1% 1/10W
1-216-683-11	s	CHIP METAL 22k 1% 1/10W
1-216-684-11	s	CHIP METAL 24k 1% 1/10W
1-216-685-11	s	CHIP METAL 27k 1% 1/10W
1-216-686-11	s	CHIP METAL 30k 1% 1/10W
1-216-687-11	s	CHIP METAL 33k 1% 1/10W
1-216-688-11	s	CHIP METAL 36k 1% 1/10W
1-216-689-11	s	CHIP METAL 39k 1% 1/10W
1-216-690-11	s	CHIP METAL 43k 1% 1/10W
1-216-691-11	s	CHIP METAL 49k 1% 1/10W
1-216-692-11	s	CHIP METAL 51k 1% 1/10W
1-216-693-11	s	CHIP METAL 56k 1% 1/10W
1-216-694-11	s	CHIP METAL 62k 1% 1/10W
1-216-695-11	s	CHIP METAL 68k 1% 1/10W
1-216-696-11	s	CHIP METAL 75k 1% 1/10W
1-216-697-11	s	CHIP METAL 82k 1% 1/10W
1-216-698-11	s	CHIP METAL 91k 1% 1/10W
1-216-699-11	s	CHIP METAL 100k 1% 1/10W

AT-63 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7515-211-A	o	MOUNTED CIRCUIT BOARD "AT-63"
1pc	7-621-772-18	s	SCREW +B 2X4
C1	1-124-234-00	s	ELECT 22uF 20% 16V
C2	1-126-154-11	s	ELECT 47uF 20% 6.3V
C3	1-126-154-11	s	ELECT 47uF 20% 6.3V
C4	1-124-229-00	s	ELECT 33uF 20% 10V
C5	1-124-229-00	s	ELECT 33uF 20% 10V
C6	1-124-229-00	s	ELECT 33uF 20% 10V
C8	1-126-157-11	s	ELECT 10uF 20% 16V
C9	1-163-251-11	s	CERAMIC 100PF 5% 50V
C10	1-131-347-00	s	TANTALUM 1uF 10% 35V
C11	1-131-347-00	s	TANTALUM 1uF 10% 35V
C13	1-124-234-00	s	ELECT 22uF 20% 16V
C14	1-126-153-11	s	ELECT 22uF 20% 6.3V
C16	1-124-589-11	s	ELECT 47uF 20% 10V
C18	1-124-584-00	s	ELECT 100uF 20% 10V
C20	1-124-234-00	s	ELECT 22uF 20% 16V
C21	1-126-153-11	s	ELECT 22uF 20% 6.3V
C22	1-126-153-11	s	ELECT 22uF 20% 6.3V
C23	1-126-153-11	s	ELECT 22uF 20% 6.3V
C24	1-124-234-00	s	ELECT 22uF 20% 16V
C25	1-126-153-11	s	ELECT 22uF 20% 6.3V
C26	1-126-163-11	s	ELECT 4.7uF 20% 50V
C27	1-126-163-11	s	ELECT 4.7uF 20% 50V
C28	1-126-163-11	s	ELECT 4.7uF 20% 50V
C29	1-126-163-11	s	ELECT 4.7uF 20% 50V
C34	1-124-234-00	s	ELECT 22uF 20% 16V
C35	1-126-160-11	s	ELECT 1uF 20% 50V
C36	1-126-160-11	s	ELECT 1uF 20% 50V
C37	1-130-489-00	s	MYLAR 0.033uF 5% 50V
C38	1-164-161-11	s	CERAMIC CHIP 0.0022uF 10% 50V
C39	1-126-160-11	s	ELECT 1uF 20% 50V
C41	1-126-153-11	s	ELECT 22uF 20% 6.3V
C43	1-126-153-11	s	ELECT 22uF 20% 6.3V
C45	1-163-245-11	s	CERAMIC 56PF 5% 50V
C46	1-131-379-00	s	TANTALUM 22uF 10% 10V
C47	1-131-379-00	s	TANTALUM 22uF 10% 10V
C50	1-126-157-11	s	ELECT 10uF 20% 16V
C53	1-126-157-11	s	ELECT 10uF 20% 16V
C62	1-124-234-00	s	ELECT 22uF 20% 16V
C63	1-126-153-11	s	ELECT 22uF 20% 6.3V
C67	1-126-157-11	s	ELECT 10uF 20% 16V
C68	1-126-157-11	s	ELECT 10uF 20% 16V
C69	1-126-157-11	s	ELECT 10uF 20% 16V
C70	1-126-153-11	s	ELECT 22uF 20% 6.3V
C79	1-131-365-00	s	TANTALUM 10uF 10% 16V
C80	1-126-160-11	s	ELECT 1uF 20% 50V
C81	1-126-157-11	s	ELECT 10uF 20% 16V
C82	1-124-589-11	s	ELECT 47uF 20% 10V
CN1	1-566-516-11	s	RECEPTACLE, FPC (ZIF) 16P
CN2	1-565-210-11	s	RECEPTACLE, FPC (ZIF) 30P
CN3	1-506-467-11	o	CONNECTOR, 2P, MALE
CN4	1-506-468-11	o	CONNECTOR, 3P, MALE
CV1	1-141-245-00	s	TRIMMER 30PF
D2	8-719-800-76	s	DIODE 1SS226
D3	8-719-104-31	s	DIODE 1S2838
D5	8-719-104-31	s	DIODE 1S2838

(AT-63 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
D9	8-719-104-31	s	DIODE 1S2838
D10	8-719-104-31	s	DIODE 1S2838
D11	8-719-104-31	s	DIODE 1S2838
D12	8-719-104-31	s	DIODE 1S2838
D13	8-719-105-90	s	DIODE RD5.6M-B1
D14	8-719-104-31	s	DIODE 1S2838
D21	8-719-800-76	s	DIODE 1SS226
D23	8-719-104-31	s	DIODE 1S2838
D24	8-719-800-76	s	DIODE 1SS226
D25	8-719-104-34	s	DIODE 1S2836
D26	8-719-104-34	s	DIODE 1S2836
D27	8-719-104-34	s	DIODE 1S2836
D28	8-719-104-34	s	DIODE 1S2836
IC1	8-759-300-71	s	IC MC14053BF
IC2	8-759-101-12	s	IC UPC311G2
IC3	8-759-981-65	s	IC LM2903M
IC4	8-759-906-54	s	IC TL064CNS
IC5	8-759-300-71	s	IC MC14053BF
IC7	8-759-906-54	s	IC TL064CNS
IC8	8-759-009-10	s	IC MC14069UBF
IC9	8-759-323-26	s	IC HD6305Y0E17F
IC10	8-759-977-80	s	IC MB88342PF
IC11	8-759-977-80	s	IC MB88342PF
IC12	8-759-009-05	s	IC MC14051BF
IC13	8-759-008-74	s	IC MC14001BF
IC14	8-759-906-54	s	IC TL064CNS
IC15	8-759-906-54	s	IC TL064CNS
IC16	8-759-112-72	s	IC UPD6142G-101
IC17	8-759-906-54	s	IC TL064CNS
IC18	8-759-300-71	s	IC MC14053BF
IC19	8-759-633-29	s	IC M6M80011L
IC20	8-759-009-10	s	IC MC14069UBF
IC21	8-759-908-17	s	IC TL082CPS
L4	1-408-783-00	s	CHIP 33uH
L5	1-408-786-21	s	CHIP 56uH
L6	1-408-783-00	s	CHIP 33uH
Q1	8-729-216-22	s	TRANSISTOR 2SA1162
Q2	8-729-216-22	s	TRANSISTOR 2SA1162
Q3	8-729-216-22	s	TRANSISTOR 2SA1162
Q4	8-729-100-66	s	TRANSISTOR 2SC1623
Q5	8-729-402-19	s	TRANSISTOR XN6501
Q6	8-729-402-19	s	TRANSISTOR XN6501
Q7	8-729-100-66	s	TRANSISTOR 2SC1623
Q8	8-729-402-84	s	TRANSISTOR XN4601
Q9	8-729-402-84	s	TRANSISTOR XN4601
Q10	8-729-109-41	s	TRANSISTOR 2SK94-X1
Q11	8-729-100-66	s	TRANSISTOR 2SC1623
Q12	8-729-402-19	s	TRANSISTOR XN6501
Q13	8-729-403-32	s	TRANSISTOR XN6534
Q14	8-729-402-84	s	TRANSISTOR XN4601
Q20	8-729-402-19	s	TRANSISTOR XN6501
Q21	8-729-402-19	s	TRANSISTOR XN6501
Q23	8-729-100-66	s	TRANSISTOR 2SC1623
R146	1-216-748-11	s	METAL CHIP 39K 5% 1/10W
RB1	1-231-387-00	s	NETTY, RES
RV1	1-237-603-11	s	RES, ADJ, METAL 2.2K

(AT-63 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
RV2	1-237-606-11	s	RES, ADJ, METAL 22K
RV3	1-237-603-11	s	RES, ADJ, METAL 2.2K
RV4	1-237-518-21	s	RES, ADJ, METAL 10K
RV5	1-237-518-21	s	RES, ADJ, METAL 10K
RV6	1-230-528-11	s	METAL 220K
S1	1-570-865-11	s	SWITCH, SLIDE
S2	1-553-977-00	s	SWITCH, SLIDE
S3	1-554-303-21	s	KEY BOARD "REC REVIEW"
S4	1-570-865-11	s	SWITCH, SLIDE
S5	1-570-865-11	s	SWITCH, SLIDE
S7	1-570-854-11	s	SWITCH, SLIDE
S8	1-570-865-11	s	SWITCH, SLIDE
S9	1-554-364-00	s	SLIDE "DISP CHG"
S10	1-570-865-11	s	SWITCH, SLIDE
X1	1-567-192-11	s	CERAMIC 4.00MHz

BC-22 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7515-221-A	o	MOUNTED CIRCUIT BOARD "BC-22"
3pcs	1-569-193-11	o	CONTACT
C1	1-124-120-11	s	ELECT 220uF 20% 25V
C2	1-126-176-11	s	ELECT 220uF 20% 10V
C3	1-124-120-11	s	ELECT 220uF 20% 25V
C4	1-131-379-00	s	TANTALUM 22uF 10% 10V
CN1	1-566-257-31	o	RECEPTACLE, BOARD TO BOARD 11P
CN2	1-566-257-31	o	RECEPTACLE, BOARD TO BOARD 11P
CN5	1-562-156-11	o	HOUSING, 11P
CN6	1-562-152-11	o	HOUSING, 7P
CN21	1-569-196-11	o	HOUSING, 3P
IC1	8-759-233-18	s	IC TC74HC374AF
L1	1-408-413-00	s	MICRO 22uH

BKG-4 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
CN1	1-565-242-11	o	HEADDER, PIN 9P
D1	8-719-104-34	s	DIODE 1S2836
D2	8-719-104-34	s	DIODE 1S2836
DL1	1-415-370-11	s	340nS
IC1	8-759-907-81	s	IC SN74LS221NS
IC2	8-759-012-84	s	IC MC14557BF
IC3	8-759-201-53	s	IC TC40H000F

CM-22 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
C1	1-163-251-11	s	CERAMIC 100PF 5% 50V
C2	1-135-164-21	s	TANTALUM CHIP 22uF 10% 20V
C4	1-163-251-11	s	CERAMIC 100PF 5% 50V
C5	1-135-164-21	s	TANTALUM CHIP 22uF 10% 20V
C6	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C7	1-163-251-11	s	CERAMIC 100PF 5% 50V
C8	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C9	1-163-251-11	s	CERAMIC 100PF 5% 50V
C11	1-163-251-11	s	CERAMIC 100PF 5% 50V
CN1	1-566-095-11	s	PIN, BOARD TO BOARD 10P
IC1	8-759-906-59	s	IC CX22017
Q1	8-729-100-66	s	TRANSISTOR 2SC1623
Q2	8-729-100-66	s	TRANSISTOR 2SC1623
Q3	8-729-100-66	s	TRANSISTOR 2SC1623
RV1	1-228-394-00	s	RES, ADJ, METAL 4.7K
RV2	1-228-394-00	s	RES, ADJ, METAL 4.7K

CN-432 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7515-210-A	o	MOUNTED CIRCUIT BOARD "CN-432"
C4	1-135-159-21	s	TANTALUM CHIP 10uF 20% 16V
C5	1-135-159-21	s	TANTALUM CHIP 10uF 20% 16V
C6	1-135-125-21	s	TANTALUM CHIP 33uF 20% 10V
C13	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C14	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C15	1-135-125-21	s	TANTALUM CHIP 33uF 20% 10V
CN1	1-563-691-21	o	CONNECTOR, BOARD TO BOARD 18P
CN2	1-563-687-21	o	RECEPTACLE, BOARD TO BOARD 14P
CN3	1-565-160-11	o	PIN, CONNECTOR (ANGLE) 13P
CN4	1-565-150-11	o	PIN, CONNECTOR (ANGLE) 3P
CN5	1-565-160-11	o	PIN, CONNECTOR (ANGLE) 13P
CN6	1-565-151-11	o	CONNECTOR, 4P, MALE
CN7	1-565-160-11	o	PIN, CONNECTOR (ANGLE) 13P
CN8	1-565-150-11	o	PIN, CONNECTOR (ANGLE) 3P
D1	8-719-104-31	s	DIODE 1S2838
D2	8-719-104-31	s	DIODE 1S2838
D3	8-719-104-31	s	DIODE 1S2838
D5	8-719-104-31	s	DIODE 1S2838
D6	8-719-104-31	s	DIODE 1S2838
D7	8-719-104-31	s	DIODE 1S2838
IC1	8-759-243-06	s	IC TC74AC04F
IC2	8-759-243-06	s	IC TC74AC04F
Q1	8-729-216-22	s	TRANSISTOR 2SA1162
Q2	8-729-100-66	s	TRANSISTOR 2SC1623
Q3	8-729-141-64	s	TRANSISTOR 2SC3735-B35
Q4	8-729-112-65	s	TRANSISTOR 2SA1462
R9	1-216-748-11	s	METAL CHIP 39K 5% 1/10W

DR-107 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	3-621-124-00	o	SPACER
C1	1-135-138-11	s	TANTAL,10uF 20% 25V
C2	1-135-076-21	s	TANTALUM CHIP 1uF 10% 35V
C3	1-135-076-21	s	TANTALUM CHIP 1uF 10% 35V
C4	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C5	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C6	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C7	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C9	1-135-159-21	s	TANTALUM CHIP 10uF 20% 16V
C11	1-163-235-11	s	CERAMIC 22PF 5% 50V
C13	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C14	1-135-213-21	s	TANTAL,3.3uF 20% 25V
C15	1-135-164-21	s	TANTALUM CHIP 22uF 10% 20V
C16	1-135-216-11	s	TANTAL,10uF 20% 10V
C17	1-163-102-00	s	CERAMIC CHIP 24PF 5% 50V
C20	1-135-164-21	s	TANTALUM CHIP 22uF 10% 20V
C21	1-135-213-21	s	TANTAL,3.3uF 20% 25V
C22	1-135-076-21	s	TANTALUM CHIP 1uF 10% 35V
C23	1-135-165-11	s	TANTALUM CHIP 33uF 10% 16V
CN1	1-566-257-31	o	RECEPTACLE, BOARD TO BOARD 11P
CN2	1-566-280-21	o	RECEPTACLE, BOARD TO BOARD 18P
CN3	1-566-276-21	o	RECEPTACLE, BOARD TO BOARD 14P
CN4	1-566-258-11	o	RECEPTACLE, BOARD TO BOARD 12P
D1	8-719-800-76	s	DIODE 1SS226
D2	8-719-104-31	s	DIODE 1S2838
D4	8-719-104-31	s	DIODE 1S2838
D5	8-719-104-31	s	DIODE 1S2838
IC1	8-759-925-80	s	IC SN74HC14NS
IC2	8-759-925-76	s	IC SN74HC08NS
IC3	8-759-100-95	s	IC UPC324G2
IC4	8-752-327-46	s	IC CXD1250M
IC5	8-752-327-46	s	IC CXD1250M
IC6	8-752-327-46	s	IC CXD1250M
L1	1-408-781-00	s	CHIP 22uH
L2	1-408-765-21	s	CHIP 1uH
L3	1-408-781-00	s	CHIP 22uH
L4	1-408-781-00	s	CHIP 22uH
Q1	8-729-144-56	s	TRANSISTER 2SC3617
Q2	8-729-100-66	s	TRANSISTOR 2SC1623
Q3	8-729-100-66	s	TRANSISTOR 2SC1623
Q4	8-729-100-66	s	TRANSISTOR 2SC1623
Q5	8-729-141-64	s	TRANSISTOR 2SC3735-B35
Q6	8-729-112-65	s	TRANSISTOR 2SA1462
Q7	8-729-112-65	s	TRANSISTOR 2SA1462
Q8	8-729-141-64	s	TRANSISTOR 2SC3735-B35
Q9	8-729-100-66	s	TRANSISTOR 2SC1623
Q10	8-729-216-22	s	TRANSISTOR 2SA1162
Q11	8-729-216-22	s	TRANSISTOR 2SA1162
RV4	1-230-867-11	s	RES, ADJ, METAL 1K
S1	1-572-328-31	s	CHIP

ES-2 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7515-214-A	o	MOUNTED CIRCUIT BOARD "ES-2(N)"
C1	1-124-589-11	s	ELECT 47uF 20% 10V
C2	1-126-154-11	s	ELECT 47uF 20% 6.3V
C3	1-135-159-21	s	TANTALUM CHIP 10uF 20% 16V
C4	1-135-159-21	s	TANTALUM CHIP 10uF 20% 16V
C5	1-163-086-00	s	CERAMIC CHIP 3PF 0.25PF 50V
C6	1-126-157-11	s	ELECT 10uF 20% 16V
C8	1-126-392-11	s	ELECT 100uF 20% 6.3V
C9	1-124-584-00	s	ELECT 100uF 20% 10V
C10	1-135-159-21	s	TANTALUM CHIP 10uF 20% 16V
C13	1-135-161-21	s	TANTALUM CHIP 22uF 10% 10V
C14	1-135-166-21	s	TANTALUM CHIP 47uF 10% 10V
C15	1-163-251-11	s	CERAMIC 100PF 5% 50V
C16	1-135-166-21	s	TANTALUM CHIP 47uF 10% 10V
C17	1-135-085-21	s	TANTALUM CHIP 4.7uF 20% 16V
C18	1-126-157-11	s	ELECT 10uF 20% 16V
C19	1-163-224-11	s	CERAMIC 7PF +-0.25PF 50V
C20	1-135-161-21	s	TANTALUM CHIP 22uF 10% 10V
C21	1-135-159-21	s	TANTALUM CHIP 10uF 20% 16V
C22	1-135-159-21	s	TANTALUM CHIP 10uF 20% 16V
C23	1-126-392-11	s	ELECT 100uF 20% 6.3V
C24	1-135-166-21	s	TANTALUM CHIP 47uF 10% 10V
C26	1-135-161-21	s	TANTALUM CHIP 22uF 10% 10V
C28	1-135-164-21	s	TANTALUM CHIP 22uF 10% 20V
C29	1-163-235-11	s	CERAMIC 22PF 5% 50V
C30	1-126-176-11	s	ELECT 220uF 20% 10V
C34	1-135-159-21	s	TANTALUM CHIP 10uF 20% 16V
C35	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C36	1-135-159-21	s	TANTALUM CHIP 10uF 20% 16V
C37	1-126-392-11	s	ELECT 100uF 20% 6.3V
C38	1-163-099-00	s	CERAMIC CHIP 18PF 5% 50V
C39	1-135-164-21	s	TANTALUM CHIP 22uF 10% 20V
C40	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C43	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C44	1-126-176-11	s	ELECT 220uF 20% 10V
C46	1-135-159-21	s	TANTALUM CHIP 10uF 20% 16V
C53	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C56	1-135-159-21	s	TANTALUM CHIP 10uF 20% 16V
C60	1-135-159-21	s	TANTALUM CHIP 10uF 20% 16V
C61	1-135-159-21	s	TANTALUM CHIP 10uF 20% 16V
C63	1-163-245-11	s	CERAMIC 56PF 5% 50V
C64	1-163-245-11	s	CERAMIC 56PF 5% 50V
C70	1-135-159-21	s	TANTALUM CHIP 10uF 20% 16V
C73	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C74	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C81	1-135-085-21	s	TANTALUM CHIP 4.7uF 20% 16V
C203	1-135-159-21	s	TANTALUM CHIP 10uF 20% 16V
CN1	1-565-780-11	o	RECEPTACLE,TX(P.L)(PC BOARD)50P
D1	8-719-104-34	s	DIODE 1S2836
D2	8-719-104-34	s	DIODE 1S2836
FL1	1-235-161-00	s	BAND PASS 3.58MHz
IC1	8-759-710-24	s	IC NJM319M
IC2	8-759-300-71	s	IC MC14053BF
IC3	8-759-204-57	s	IC TC40H076AF
IC4	8-759-009-10	s	IC MC14069UBF
IC5	1-807-836-11	s	HYBRID-IC (SYNC SEP)
IC6	1-808-513-12	s	IC IB-38
IC7	8-759-907-81	s	IC SN74LS221NS
IC8	8-741-134-00	s	IC BX1340
IC9	1-808-514-11	s	IC IB-37
IC10	8-752-332-67	s	IC CXD1217M
IC11	8-759-209-90	s	IC TC4S71F
IC12	8-759-209-15	s	IC TC4SU69F
IC13	8-759-231-32	s	IC TC7S00F
L1	1-408-781-00	s	CHIP 22uH
L2	1-408-777-00	s	CHIP 10uH
L3	1-408-781-00	s	CHIP 22uH
L4	1-408-781-00	s	CHIP 22uH
L6	1-408-781-00	s	CHIP 22uH
L7	1-408-781-00	s	CHIP 22uH
L8	1-408-781-00	s	CHIP 22uH
L9	1-408-785-21	s	CHIP 47uH
L10	1-408-781-00	s	CHIP 22uH
L11	1-408-777-00	s	CHIP 10uH
L12	1-408-785-21	s	CHIP 47uH
L13	1-408-783-00	s	CHIP 33uH
L14	1-408-785-21	s	CHIP 47uH
L15	1-408-785-21	s	CHIP 47uH
L16	1-408-785-21	s	CHIP 47uH
L17	1-408-785-21	s	CHIP 47uH
L18	1-408-784-11	s	CHIP 39uH
L19	1-408-785-21	s	CHIP 47uH
L20	1-408-785-21	s	CHIP 47uH
L101	1-408-777-00	s	CHIP 10uH
L201	1-408-785-21	s	CHIP 47uH
LV1	1-408-844-00	s	22uH
Q1	8-729-402-84	s	TRANSISTOR XN4601
Q2	8-729-402-19	s	TRANSISTOR XN6501
Q3	8-729-122-63	s	TRANSISTOR 2SA1226
Q4	8-729-402-19	s	TRANSISTOR XN6501
Q5	8-729-402-78	s	TRANSISTOR XN6401
Q6	8-729-100-66	s	TRANSISTOR 2SC1623
Q7	8-729-175-73	s	TRANSISTOR 2SC2757
Q8	8-729-216-22	s	TRANSISTOR 2SA1162
Q9	8-729-402-19	s	TRANSISTOR XN6501
Q11	8-729-100-66	s	TRANSISTOR 2SC1623
Q12	8-729-402-19	s	TRANSISTOR XN6501
Q13	8-729-402-19	s	TRANSISTOR XN6501
Q14	8-729-216-22	s	TRANSISTOR 2SA1162
Q15	8-729-100-66	s	TRANSISTOR 2SC1623
Q20	8-729-109-41	s	TRANSISTOR 2SK94-X1
RV1	1-230-523-11	s	RES, ADJ, METAL 10K
RV2	1-230-519-11	s	RES, ADJ, METAL 470
RV3	1-230-521-11	s	RES, ADJ, METAL 2.2K
RV4	1-230-519-11	s	RES, ADJ, METAL 470
RV5	1-230-524-11	s	RES, ADJ, METAL 22K
RV6	1-230-522-11	s	RES, ADJ, METAL 4.7K
RV7	1-230-521-11	s	RES, ADJ, METAL 2.2K
RV8	1-230-524-11	s	RES, ADJ, METAL 22K

IE-29 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7515-229-A	o	MOUNTED CIRCUIT BOARD "IE-29(N)"
C1	1-124-584-00	s	ELECT 100uF 20% 10V
C5	1-163-227-11	s	CERAMIC 10PF 5% 50V
C7	1-131-377-00	s	TANTALUM 10uF 10% 10V
C12	1-131-365-00	s	TANTALUM 10uF 10% 16V
C18	1-163-100-00	s	CERAMIC CHIP 20PF 5% 50V
C19	1-163-241-11	s	CERAMIC CHIP 39PF 5% 50V
C20	1-164-182-11	s	CERAMIC 0.0033uF 10% 50V
C21	1-124-584-00	s	ELECT 100uF 20% 10V
C23	1-124-589-11	s	ELECT 47uF 20% 10V
C24	1-124-589-11	s	ELECT 47uF 20% 10V
C26	1-126-096-11	s	ELECT 10uF 20% 35V
C28	1-131-347-00	s	TANTALUM 1uF 10% 35V
C29	1-131-365-00	s	TANTALUM 10uF 10% 16V
C33	1-163-227-11	s	CERAMIC 10PF 5% 50V
C34	1-163-103-00	s	CERAMIC CHIP 27PF 5% 50V
C36	1-126-163-11	s	ELECT 4.7uF 20% 50V
C37	1-124-234-00	s	ELECT 22uF 20% 16V
C38	1-131-347-00	s	TANTALUM 1uF 10% 35V
C39	1-131-347-00	s	TANTALUM 1uF 10% 35V
C42	1-126-096-11	s	ELECT 10uF 20% 35V
C44	1-124-589-11	s	ELECT 47uF 20% 10V
C45	1-126-096-11	s	ELECT 10uF 20% 35V
C47	1-126-096-11	s	ELECT 10uF 20% 35V
C49	1-163-092-00	s	CERAMIC CHIP 9PF 0.25PF 50V
C50	1-163-241-11	s	CERAMIC CHIP 39PF 5% 50V
C51	1-163-115-00	s	CERAMIC CHIP 82PF 5% 50V
C52	1-126-096-11	s	ELECT 10uF 20% 35V
C53	1-126-096-11	s	ELECT 10uF 20% 35V
C55	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C57	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C60	1-126-096-11	s	ELECT 10uF 20% 35V
C70	1-126-096-11	s	ELECT 10uF 20% 35V
C71	1-126-096-11	s	ELECT 10uF 20% 35V
C72	1-131-377-00	s	TANTALUM 10uF 10% 10V
C74	1-126-096-11	s	ELECT 10uF 20% 35V
C75	1-131-347-00	s	TANTALUM 1uF 10% 35V
C77	1-131-344-00	s	TANTALUM 0.33uF 10% 35V
C78	1-131-365-00	s	TANTALUM 10uF 10% 16V
C80	1-131-377-00	s	TANTALUM 10uF 10% 10V
C82	1-126-163-11	s	ELECT 4.7uF 20% 50V
C85	1-126-096-11	s	ELECT 10uF 20% 35V
C86	1-126-096-11	s	ELECT 10uF 20% 35V
C87	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C88	1-163-235-11	s	CERAMIC 22PF 5% 50V
C91	1-126-096-11	s	ELECT 10uF 20% 35V
C92	1-131-365-00	s	TANTALUM 10uF 10% 16V
C93	1-131-365-00	s	TANTALUM 10uF 10% 16V
C94	1-163-086-00	s	CERAMIC CHIP 3PF 0.25PF 50V
C95	1-163-096-00	s	CERAMIC CHIP 13PF 5% 50V
CN1	1-566-268-21	o	RECEPTACLE, BOARD TO BOARD 6P
CN2	1-566-275-21	o	RECEPTACLE, BOARD TO BOARD 13P
D1	8-719-800-76	s	DIODE 1SS226
D4	8-719-101-97	s	DIODE 1SS97-1
D5	8-719-101-97	s	DIODE 1SS97-1
DL1	1-415-305-71	s	DELAY LINE (1H)

(IE-29 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
IC1	8-759-981-51	s	IC RC1496M
IC2	8-759-031-58	s	IC SC7SU04F
IC3	8-759-300-71	s	IC MC14053BF
IC4	8-759-300-71	s	IC MC14053BF
IC5	8-759-702-02	s	IC NJM062M
IC6	8-752-332-69	s	IC CXL5504M
IC7	8-759-926-28	s	IC SN74HC174NS
IC8	8-759-925-72	s	IC SN74HC02NS
IC9	8-759-925-72	s	IC SN74HC02NS
IC10	8-759-702-02	s	IC NJM062M
L1	1-408-425-00	s	220uH
L2	1-408-413-00	s	MICRO 22uH
L3	1-408-413-00	s	MICRO 22uH
L4	1-408-413-00	s	MICRO 22uH
L5	1-408-413-00	s	MICRO 22uH
L7	1-410-471-11	s	12uH
L8	1-408-414-00	s	27uH
L9	1-408-416-00	s	39uH
L11	1-408-414-00	s	27uH
L12	1-408-418-00	s	MICRO 56uH
L13	1-408-429-00	s	INDUCTOR 470uH
L14	1-408-411-00	s	15uH
L15	1-408-411-00	s	15uH
L16	1-408-780-21	s	CHIP 18uH
Q1	8-729-100-66	s	TRANSISTOR 2SC1623
Q2	8-729-175-73	s	TRANSISTOR 2SC2757
Q3	8-729-175-73	s	TRANSISTOR 2SC2757
Q4	8-729-122-63	s	TRANSISTOR 2SA1226
Q5	8-729-122-63	s	TRANSISTOR 2SA1226
Q6	8-729-175-73	s	TRANSISTOR 2SC2757
Q7	8-729-175-73	s	TRANSISTOR 2SC2757
Q8	8-729-109-41	s	TRANSISTOR 2SK94-X1
Q9	8-729-175-73	s	TRANSISTOR 2SC2757
Q10	8-729-175-73	s	TRANSISTOR 2SC2757
Q11	8-729-175-73	s	TRANSISTOR 2SC2757
Q12	8-729-175-73	s	TRANSISTOR 2SC2757
Q13	8-729-175-73	s	TRANSISTOR 2SC2757
Q14	8-729-175-73	s	TRANSISTOR 2SC2757
Q15	8-729-175-73	s	TRANSISTOR 2SC2757
Q16	8-729-100-66	s	TRANSISTOR 2SC1623
Q17	8-729-100-66	s	TRANSISTOR 2SC1623
Q18	8-729-216-22	s	TRANSISTOR 2SA1162
Q19	8-729-216-22	s	TRANSISTOR 2SA1162
Q21	8-729-100-66	s	TRANSISTOR 2SC1623
Q22	8-729-100-66	s	TRANSISTOR 2SC1623
Q23	8-729-216-22	s	TRANSISTOR 2SA1162
Q24	8-729-100-66	s	TRANSISTOR 2SC1623
Q25	8-729-100-66	s	TRANSISTOR 2SC1623
Q26	8-729-216-22	s	TRANSISTOR 2SA1162
Q27	8-729-216-22	s	TRANSISTOR 2SA1162
Q28	8-729-100-66	s	TRANSISTOR 2SC1623
Q29	8-729-100-66	s	TRANSISTOR 2SC1623
Q30	8-729-100-66	s	TRANSISTOR 2SC1623
Q31	8-729-100-66	s	TRANSISTOR 2SC1623
Q32	8-729-100-66	s	TRANSISTOR 2SC1623
Q33	8-729-100-66	s	TRANSISTOR 2SC1623
Q34	8-729-100-66	s	TRANSISTOR 2SC1623
Q35	8-729-100-66	s	TRANSISTOR 2SC1623
Q36	8-729-100-66	s	TRANSISTOR 2SC1623

(IE-29 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q37	8-729-100-66	s	TRANSISTOR 2SC1623
Q38	8-729-109-41	s	TRANSISTOR 2SK94-X1
Q39	8-729-100-66	s	TRANSISTOR 2SC1623
Q40	8-729-216-22	s	TRANSISTOR 2SA1162
Q41	8-729-175-73	s	TRANSISTOR 2SC2757
Q42	8-729-175-73	s	TRANSISTOR 2SC2757
Q43	8-729-100-66	s	TRANSISTOR 2SC1623
Q44	8-729-216-22	s	TRANSISTOR 2SA1162
Q45	8-729-216-22	s	TRANSISTOR 2SA1162
Q46	8-729-100-66	s	TRANSISTOR 2SC1623
Q48	8-729-100-66	s	TRANSISTOR 2SC1623
Q49	8-729-100-66	s	TRANSISTOR 2SC1623
Q50	8-729-216-22	s	TRANSISTOR 2SA1162
Q51	8-729-100-66	s	TRANSISTOR 2SC1623
Q52	8-729-100-66	s	TRANSISTOR 2SC1623
Q53	8-729-216-22	s	TRANSISTOR 2SA1162
Q54	8-729-216-22	s	TRANSISTOR 2SA1162
Q55	8-729-216-22	s	TRANSISTOR 2SA1162
Q56	8-729-100-66	s	TRANSISTOR 2SC1623
Q57	8-729-175-73	s	TRANSISTOR 2SC2757
R17	1-216-003-11	s	METAL CHIP 12 5% 1/10W
R43	1-216-654-11	s	METAL CHIP 1.3K 0.50% 1/10W
RV1	1-226-703-11	s	RES, ADJ, METAL 10K
RV2	1-226-771-11	s	RES, ADJ, METAL 1K
RV3	1-238-221-11	s	RES, ADJ, METAL 2.2K
RV4	1-228-519-00	s	RES, ADJ, METAL 2.2K
RV5	1-226-770-11	s	RES, ADJ, METAL 470
RV6	1-237-603-11	s	RES, ADJ, METAL 2.2K
S1	1-553-977-00	s	SWITCH, SLIDE

MB-325 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7515-212-A	o	MOUNTED CIRCUIT BOARD "MB-325(N)"
C1	1-124-584-00	s	ELECT 100uF 20% 10V
C3	1-124-148-00	s	ELECT 100uF 20% 25V
C5	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C7	1-124-148-00	s	ELECT 100uF 20% 25V
C8	1-124-148-00	s	ELECT 100uF 20% 25V
C9	1-163-227-11	s	CERAMIC 10PF 5% 50V
C18	1-135-159-21	s	TANTALUM CHIP 10uF 20% 16V
C19	1-135-216-11	s	TANTAL,10uF 20% 10V
C21	1-135-216-11	s	TANTAL,10uF 20% 10V
CN1	1-565-781-11	o	RECEPTACLE,TX(S.S)(PC BOARD)50P
CN2	1-565-781-11	o	RECEPTACLE,TX(S.S)(PC BOARD)50P
CN3	1-566-579-11	o	CONNECTOR, MULTI 50P
CN4	1-566-516-11	s	RECEPTACLE, FPC (ZIF) 16P
CN5	1-506-490-21	o	CONNECTOR, 11P, MALE
CN6	1-506-471-11	o	CONNECTOR, 6P, MALE
CN7	1-566-199-11	o	PIN, CONNECTOR (PC BOARD) 6P
CN8	1-506-467-11	o	CONNECTOR, 2P, MALE
CN9	1-506-487-11	o	CONNECTOR, 8P, MALE
	1-569-202-31	o	HOUSING, 9P
	1-569-191-11	o	TERMINAL, SOLDERLESS
	1-569-193-11	o	CONTACT
CN10	1-560-356-00	o	CONNECTOR POST HEADER, ILG (2P) MAL
	1-561-514-00	o	HOUSING, ILG 2P FEMALE
	1-560-372-00	o	CONTACT, AWG22-28
CN11	1-506-468-11	o	CONNECTOR, 3P, MALE
CN13	1-506-488-11	o	CONNECTOR, 9P, MALE
CN14	1-506-481-11	o	CONNECTOR, 2P, MALE
CN15	1-506-481-11	o	CONNECTOR, 2P, MALE
CN16	1-506-481-11	o	CONNECTOR, 2P, MALE
CN17	1-506-481-11	o	CONNECTOR, 2P, MALE
	1-562-147-11	o	HOUSING, 2P
	1-569-193-11	o	CONTACT
CN19	1-506-472-11	o	CONNECTOR, 7P, MALE
CN21	1-506-482-11	o	CONNECTOR, 3P, MALE
CN22	1-565-210-11	s	RECEPTACLE, FPC (ZIF) 30P
D1	8-719-815-85	s	DIODE 1S1585
D2	8-719-815-85	s	DIODE 1S1585
D3	8-719-105-90	s	DIODE RD5.6M-B1
IC1	8-759-209-90	s	IC TC4S71F
IC2	8-759-209-69	s	IC TC4S11F
IC3	8-759-150-17	s	IC CXD8154M
L1	1-408-096-00	s	470uH
L2	1-408-096-00	s	470uH
L4	1-408-767-21	s	CHIP 1.5uH
PU1	1-466-426-11	s	CONVERTER UNIT, DC-DC
Q1	8-729-100-66	s	TRANSISTOR 2SC1623
Q2	8-729-100-66	s	TRANSISTOR 2SC1623
Q3	8-729-100-66	s	TRANSISTOR 2SC1623
Q4	8-729-100-66	s	TRANSISTOR 2SC1623
Q5	8-729-216-22	s	TRANSISTOR 2SA1162
Q6	8-729-109-41	s	TRANSISTOR 2SK94-X1
Q7	8-729-100-66	s	TRANSISTOR 2SC1623
Q8	8-729-140-75	s	TRANSISTER 2SD999-CLOCK
Q9	8-729-101-07	s	TRANSISTOR 2SB798-DL

(MB-325 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q10	8-729-216-22	s	TRANSISTOR 2SA1162
Q11	8-729-100-66	s	TRANSISTOR 2SC1623
Q12	8-729-216-22	s	TRANSISTOR 2SA1162
Q13	8-729-100-66	s	TRANSISTOR 2SC1623
Q14	8-729-216-22	s	TRANSISTOR 2SA1162
R21	1-249-399-11	s	CARBON 33 5% 1/4W
R22	1-249-399-11	s	CARBON 33 5% 1/4W
R27	⚠ 1-216-369-00	s	METAL 1 5% 2W
S1	1-553-977-00	s	SWITCH, SLIDE
S2	1-553-977-00	s	SWITCH, SLIDE

MX-18 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
C1	1-163-224-11	s	CERAMIC 7PF +-0.25PF 50V
C3	1-163-099-00	s	CERAMIC CHIP 18PF 5% 50V
C4	1-135-159-21	s	TANTALUM CHIP 10uF 20% 16V
C11	1-135-164-21	s	TANTALUM CHIP 22uF 10% 20V
CN1	1-566-095-11	s	PIN, BOARD TO BOARD 10P
CN2	1-566-095-11	s	PIN, BOARD TO BOARD 10P
L1	1-408-795-21	s	CHIP 330uH
L2	1-408-795-21	s	CHIP 330uH
Q1	8-729-403-29	s	TRANSISTOR XN6435
Q2	8-729-402-16	s	TRANSISTOR XN4608
Q3	8-729-402-19	s	TRANSISTOR XN6501
Q4	8-729-100-66	s	TRANSISTOR 2SC1623
Q5	8-729-402-78	s	TRANSISTOR XN6401
Q6	8-729-402-19	s	TRANSISTOR XN6501
Q7	8-729-100-66	s	TRANSISTOR 2SC1623
Q8	8-729-216-22	s	TRANSISTOR 2SA1162
Q9	8-729-402-78	s	TRANSISTOR XN6401
R1	1-218-254-11	s	METAL CHIP 2.55K 0.50% 1/10W
R2	1-218-257-11	s	METAL CHIP 4.99K 0.50% 1/10W
R3	1-218-259-11	s	METAL CHIP 13.7K 0.50% 1/10W
R12	1-218-255-11	s	METAL CHIP 2.67K 0.50% 1/10W
R13	1-218-253-11	s	METAL CHIP 2.32K 0.50% 1/10W
R28	1-218-256-11	s	METAL CHIP 3.32K 0.50% 1/10W
R29	1-218-252-11	s	METAL CHIP 2.26K 0.50% 1/10W
RV1	1-238-220-11	s	RES, ADJ, METAL 1K
RV2	1-238-222-11	s	RES, ADJ, METAL 4.7K
RV3	1-238-221-11	s	RES, ADJ, METAL 2.2K
RV4	1-238-219-11	s	RES, VAR, METAL 470

PA-106 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7515-218-A	o	MOUNTED CIRCUIT BOARD "PA-106"
2pcs	1-565-164-11	o	CONTACT, FEMALE AWG26-28
2pcs	1-566-987-11	o	CONTACT, AWG28-32
1pc	1-569-193-11	o	CONTACT
C1	1-135-154-21	s	TANTALUM CHIP 3.3uF 10% 20V
C2	1-135-152-21	s	TANTAL,1.5uF 20% 35V
C3	1-135-166-21	s	TANTALUM CHIP 47uF 10% 10V
C4	1-135-177-21	s	TANTALUM 1uF 10% 25V
C5	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C6	1-135-164-21	s	TANTALUM CHIP 22uF 10% 20V
C8	1-135-164-21	s	TANTALUM CHIP 22uF 10% 20V
C9	1-163-037-11	s	CERAMIC CHIP 0.022uF 10% 25V
C19	1-135-211-11	s	TANTAL,6.8uF 20% 6.3V
C22	1-163-037-11	s	CERAMIC CHIP 0.022uF 10% 25V
C27	1-135-091-00	s	TANTALUM CHIP 1uF 20% 16V
C30	1-135-215-21	s	TANTAL,6.8uF 20% 16V
C31	1-124-584-00	s	ELECT 100uF 20% 10V
CN1	1-565-794-11	o	HOUSING, 13P
CN2	1-566-989-11	o	HOUSING, 3P
CN7	1-565-132-11	o	HOUSING, 13P
CN8	1-565-122-11	o	HOUSING, 3P
CN14	1-562-147-11	o	HOUSING, 2P
Q1	8-729-175-73	s	TRANSISTOR 2SC2757
Q2	8-729-216-22	s	TRANSISTOR 2SA1162
Q3	8-765-930-08	s	TRANSISTOR 3SK163-2
Q4	8-729-100-66	s	TRANSISTOR 2SC1623
Q5	8-729-216-22	s	TRANSISTOR 2SA1162
Q6	8-765-930-08	s	TRANSISTOR 3SK163-2
Q10	8-729-100-66	s	TRANSISTOR 2SC1623
Q11	8-729-216-22	s	TRANSISTOR 2SA1162
Q12	8-765-930-08	s	TRANSISTOR 3SK163-2
Q13	8-729-100-66	s	TRANSISTOR 2SC1623
Q17	8-729-100-66	s	TRANSISTOR 2SC1623
Q18	8-729-100-66	s	TRANSISTOR 2SC1623
Q19	8-729-100-66	s	TRANSISTOR 2SC1623
Q20	8-729-100-66	s	TRANSISTOR 2SC1623
Q21	8-729-216-22	s	TRANSISTOR 2SA1162
Q22	8-729-100-66	s	TRANSISTOR 2SC1623
Q24	8-729-100-66	s	TRANSISTOR 2SC1623
R10	1-216-748-11	s	METAL CHIP 39K 5% 1/10W

PA-107B BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7515-220-A	o	MOUNTED CIRCUIT BOARD "PA-107B"
2pcs	1-565-164-11	o	CONTACT, FEMALE AWG26-28
2pcs	1-566-987-11	o	CONTACT, AWG28-32
1pc	1-569-193-11	o	CONTACT
C1	1-135-154-21	s	TANTALUM CHIP 3.3uF 10% 20V
C2	1-135-152-21	s	TANTAL,1.5uF 20% 35V
C3	1-135-166-21	s	TANTALUM CHIP 47uF 10% 10V
C4	1-135-177-21	s	TANTALUM 1uF 10% 25V
C5	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C6	1-135-164-21	s	TANTALUM CHIP 22uF 10% 20V
C8	1-135-164-21	s	TANTALUM CHIP 22uF 10% 20V
C9	1-163-037-11	s	CERAMIC CHIP 0.022uF 10% 25V
C19	1-135-211-11	s	TANTAL,6.8uF 20% 6.3V
C22	1-163-037-11	s	CERAMIC CHIP 0.022uF 10% 25V
C27	1-135-091-00	s	TANTALUM CHIP 1uF 20% 16V
C30	1-135-089-21	s	TANTALUM CHIP 6.8uF 10% 20V
C31	1-124-584-00	s	ELECT 100uF 20% 10V
CN1	1-565-794-11	o	HOUSING, 13P
CN2	1-566-989-11	o	HOUSING, 3P
CN7	1-565-132-11	o	HOUSING, 13P
CN8	1-565-122-11	o	HOUSING, 3P
CN16	1-562-147-11	o	HOUSING, 2P
Q1	8-729-175-73	s	TRANSISTOR 2SC2757
Q2	8-729-216-22	s	TRANSISTOR 2SA1162
Q3	8-765-930-08	s	TRANSISTOR 3SK163-2
Q4	8-729-100-66	s	TRANSISTOR 2SC1623
Q5	8-729-216-22	s	TRANSISTOR 2SA1162
Q9	8-765-930-08	s	TRANSISTOR 3SK163-2
Q10	8-729-100-66	s	TRANSISTOR 2SC1623
Q11	8-729-216-22	s	TRANSISTOR 2SA1162
Q15	8-765-930-08	s	TRANSISTOR 3SK163-2
Q16	8-729-100-66	s	TRANSISTOR 2SC1623
Q17	8-729-100-66	s	TRANSISTOR 2SC1623
Q18	8-729-100-66	s	TRANSISTOR 2SC1623
Q19	8-729-100-66	s	TRANSISTOR 2SC1623
Q20	8-729-100-66	s	TRANSISTOR 2SC1623
Q21	8-729-216-22	s	TRANSISTOR 2SA1162
Q22	8-729-100-66	s	TRANSISTOR 2SC1623
Q24	8-729-100-66	s	TRANSISTOR 2SC1623
R10	1-216-748-11	s	METAL CHIP 39K 5% 1/10W
R33	1-216-628-11	s	METAL CHIP 110 0.50% 1/10W

PA-107G BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7515-219-A	o	MOUNTED CIRCUIT BOARD "PA-107G"
2pcs	1-565-164-11	o	CONTACT, FEMALE AWG26-28
2pcs	1-566-987-11	o	CONTACT, AWG28-32
1pc	1-569-193-11	o	CONTACT
C1	1-135-154-21	s	TANTALUM CHIP 3.3uF 10% 20V
C2	1-135-152-21	s	TANTAL,1.5uF 20% 35V
C3	1-135-166-21	s	TANTALUM CHIP 47uF 10% 10V
C4	1-135-177-21	s	TANTALUM 1uF 10% 25V
C5	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C6	1-135-164-21	s	TANTALUM CHIP 22uF 10% 20V
C8	1-135-164-21	s	TANTALUM CHIP 22uF 10% 20V
C9	1-163-037-11	s	CERAMIC CHIP 0.022uF 10% 25V
C19	1-135-211-11	s	TANTAL,6.8uF 20% 6.3V
C22	1-163-037-11	s	CERAMIC CHIP 0.022uF 10% 25V
C27	1-135-091-00	s	TANTALUM CHIP 1uF 20% 16V
C30	1-135-089-21	s	TANTALUM CHIP 6.8uF 10% 20V
C31	1-124-584-00	s	ELECT 100uF 20% 10V
CN1	1-565-794-11	o	HOUSING, 13P
CN2	1-566-990-11	o	HOUSING, 4P
CN6	1-565-123-11	o	HOUSING, 4P
CN7	1-565-132-11	o	HOUSING, 13P
CN15	1-562-147-11	o	HOUSING, 2P
Q1	8-729-175-73	s	TRANSISTOR 2SC2757
Q2	8-729-216-22	s	TRANSISTOR 2SA1162
Q3	8-765-930-08	s	TRANSISTOR 3SK163-2
Q4	8-729-100-66	s	TRANSISTOR 2SC1623
Q5	8-729-216-22	s	TRANSISTOR 2SA1162
Q6	8-765-930-08	s	TRANSISTOR 3SK163-2
Q7	8-729-100-66	s	TRANSISTOR 2SC1623
Q8	8-729-216-22	s	TRANSISTOR 2SA1162
Q9	8-765-930-08	s	TRANSISTOR 3SK163-2
Q10	8-729-100-66	s	TRANSISTOR 2SC1623
Q11	8-729-216-22	s	TRANSISTOR 2SA1162
Q12	8-765-930-08	s	TRANSISTOR 3SK163-2
Q13	8-729-100-66	s	TRANSISTOR 2SC1623
Q14	8-729-216-22	s	TRANSISTOR 2SA1162
Q15	8-765-930-08	s	TRANSISTOR 3SK163-2
Q16	8-729-100-66	s	TRANSISTOR 2SC1623
Q17	8-729-100-66	s	TRANSISTOR 2SC1623
Q18	8-729-100-66	s	TRANSISTOR 2SC1623
Q19	8-729-100-66	s	TRANSISTOR 2SC1623
Q20	8-729-100-66	s	TRANSISTOR 2SC1623
Q21	8-729-216-22	s	TRANSISTOR 2SA1162
Q22	8-729-100-66	s	TRANSISTOR 2SC1623
Q24	8-729-100-66	s	TRANSISTOR 2SC1623
R10	1-216-748-11	s	METAL CHIP 39K 5% 1/10W
R33	1-216-632-11	s	METAL CHIP 160 0.50% 1/10W

PR-147 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
C2	1-135-091-00	s	TANTALUM CHIP 1uF 20% 16V
C3	1-135-091-00	s	TANTALUM CHIP 1uF 20% 16V
C4	1-135-091-00	s	TANTALUM CHIP 1uF 20% 16V
C5	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C6	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C7	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C8	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C9	1-163-224-11	s	CERAMIC 7PF +-0.25PF 50V
C11	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C12	1-135-159-21	s	TANTALUM CHIP 10uF 20% 16V
C14	1-163-235-11	s	CERAMIC 22PF 5% 50V
C15	1-163-088-00	s	CERAMIC CHIP 5PF 0.25PF 50V
C16	1-135-216-11	s	TANTAL,10uF 20% 10V
C17	1-135-216-11	s	TANTAL,10uF 20% 10V
C18	1-163-235-11	s	CERAMIC 22PF 5% 50V
C19	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C20	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
CN1	1-566-095-11	s	PIN, BOARD TO BOARD 10P
CN2	1-566-095-11	s	PIN, BOARD TO BOARD 10P
D1	8-719-104-34	s	DIODE 1S2836
D2	8-719-104-34	s	DIODE 1S2836
D3	8-719-104-34	s	DIODE 1S2836
IC1	8-759-906-53	s	IC TL062CPS
Q1	8-729-175-73	s	TRANSISTOR 2SC2757
Q2	8-729-100-66	s	TRANSISTOR 2SC1623
Q3	8-729-175-73	s	TRANSISTOR 2SC2757
Q4	8-729-175-73	s	TRANSISTOR 2SC2757
Q5	8-729-175-73	s	TRANSISTOR 2SC2757
Q6	8-729-109-41	s	TRANSISTOR 2SK94-X1
Q7	8-729-122-63	s	TRANSISTOR 2SA1226
Q8	8-729-100-66	s	TRANSISTOR 2SC1623
Q9	8-729-402-78	s	TRANSISTOR XN6401
Q10	8-729-403-29	s	TRANSISTOR XN6435
Q11	8-729-403-32	s	TRANSISTOR XN6534
RV1	1-238-219-11	s	RES, VAR, METAL 470
RV2	1-238-222-11	s	RES, ADJ, METAL 4.7K

PR-148 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7515-223-A	o	MOUNTED CIRCUIT BOARD "PR-148(N)"
C1	1-126-157-11	s	ELECT 10uF 20% 16V
C7	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C9	1-163-227-11	s	CERAMIC 10PF 5% 50V
C11	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C13	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C13	1-163-088-00	s	CERAMIC CHIP 5PF 0.25PF 50V
C14	1-124-589-11	s	ELECT 47uF 20% 10V
C17	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C24	1-124-472-11	s	ELECT 470uF 20% 10V
C25	1-124-471-00	s	ELECT 1000uF 20% 6.3V
C26	1-124-471-00	s	ELECT 1000uF 20% 6.3V
C37	1-126-157-11	s	ELECT 10uF 20% 16V
C38	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C39	1-124-589-11	s	ELECT 47uF 20% 10V
C40	1-164-161-11	s	CERAMIC CHIP 0.0022uF 10% 50V
C41	1-126-157-11	s	ELECT 10uF 20% 16V
C42	1-126-157-11	s	ELECT 10uF 20% 16V
C43	1-126-157-11	s	ELECT 10uF 20% 16V
C44	1-124-472-11	s	ELECT 470uF 20% 10V
C50	1-163-251-11	s	CERAMIC 100PF 5% 50V
C51	1-164-161-11	s	CERAMIC CHIP 0.0022uF 10% 50V
C53	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
CN1	1-563-679-21	o	RECEPTACLE, BOARD TO BOARD 6P
CN2	1-563-686-21	o	RECEPTACLE, BOARD TO BOARD 13P
CN3	1-565-780-11	o	RECEPTACLE,TX(P.L)(PC BOARD)50P
D3	8-719-104-34	s	DIODE 1S2836
D4	8-719-104-34	s	DIODE 1S2836
D6	8-719-914-12	s	DIODE HZ4BLL
D7	8-719-914-12	s	DIODE HZ4BLL
D8	8-719-914-12	s	DIODE HZ4BLL
D9	8-719-104-34	s	DIODE 1S2836
D10	8-719-104-34	s	DIODE 1S2836
DL1	1-415-307-00	s	165nS
DL2	1-415-307-00	s	165nS
DL3	1-415-307-00	s	165nS
IC1	8-759-204-40	s	IC TC40H027F
IC2	8-759-201-50	s	IC TC40H193F
IC3	8-759-906-54	s	IC TL064CNS
IC4	8-759-201-53	s	IC TC40H000F
IC5	8-759-209-97	s	IC TC4S81F
IC6	8-759-209-97	s	IC TC4S81F
IC7	8-759-209-97	s	IC TC4S81F
IC8	8-759-300-71	s	IC MC14053BF
IC9	8-759-209-97	s	IC TC4S81F
IC10	8-759-209-69	s	IC TC4S11F
IC11	8-759-209-97	s	IC TC4S81F
IC12	8-759-209-54	s	IC TC4S01F
IC13	8-759-209-15	s	IC TC4SU69F
LP1	1-409-427-11	s	FILTER, TRAP 14.3MHz
Q1	8-729-216-22	s	TRANSISTOR 2SA1162
Q2	8-729-109-41	s	TRANSISTOR 2SK94-X1
Q3	8-729-100-66	s	TRANSISTOR 2SC1623
Q4	8-729-100-66	s	TRANSISTOR 2SC1623
Q5	8-729-100-66	s	TRANSISTOR 2SC1623
Q6	8-729-100-66	s	TRANSISTOR 2SC1623
Q7	8-729-901-46	s	TRANSISTOR DTA114YK
Q8	8-729-900-52	s	TRANSISTER DTC114YK
Q9	8-729-900-52	s	TRANSISTER DTC114YK
Q10	8-729-216-22	s	TRANSISTOR 2SA1162
Q11	8-729-216-22	s	TRANSISTOR 2SA1162
Q12	8-729-216-22	s	TRANSISTOR 2SA1162
Q13	8-729-100-66	s	TRANSISTOR 2SC1623
Q19	8-729-100-66	s	TRANSISTOR 2SC1623
Q20	8-729-100-66	s	TRANSISTOR 2SC1623
Q21	8-729-100-66	s	TRANSISTOR 2SC1623
Q22	8-729-100-66	s	TRANSISTOR 2SC1623
Q23	8-729-100-66	s	TRANSISTOR 2SC1623
Q24	8-729-100-66	s	TRANSISTOR 2SC1623
Q25	8-729-100-66	s	TRANSISTOR 2SC1623
Q26	8-729-901-46	s	TRANSISTOR DTA114YK
Q31	8-729-216-22	s	TRANSISTOR 2SA1162
Q32	8-729-100-66	s	TRANSISTOR 2SC1623
Q33	8-729-100-66	s	TRANSISTOR 2SC1623
Q34	8-729-109-41	s	TRANSISTOR 2SK94-X1
R125	1-216-748-11	s	METAL CHIP 39K 5% 1/10W
RV1	1-226-703-11	s	RES, ADJ, METAL 10K
RV2	1-226-771-11	s	RES, ADJ, METAL 1K
RV3	1-226-771-11	s	RES, ADJ, METAL 1K
RV4	1-226-771-11	s	RES, ADJ, METAL 1K
RV5	1-226-771-11	s	RES, ADJ, METAL 1K
RV6	1-238-222-11	s	RES, ADJ, METAL 4.7K
RV7	1-238-222-11	s	RES, ADJ, METAL 4.7K
RV8	1-238-222-11	s	RES, ADJ, METAL 4.7K
RV9	1-226-702-00	s	RES, ADJ, METAL 2.2K
RV10	1-226-702-00	s	RES, ADJ, METAL 2.2K
RV11	1-226-702-00	s	RES, ADJ, METAL 2.2K
RV12	1-238-225-11	s	RES, ADJ, METAL 47K
RV13	1-238-225-11	s	RES, ADJ, METAL 47K
RV14	1-238-225-11	s	RES, ADJ, METAL 47K
RV15	1-238-225-11	s	RES, ADJ, METAL 47K
RV16	1-238-225-11	s	RES, ADJ, METAL 47K
RV17	1-238-225-11	s	RES, ADJ, METAL 47K
RV18	1-238-225-11	s	RES, ADJ, METAL 47K
RV19	1-238-225-11	s	RES, ADJ, METAL 47K
RV20	1-238-225-11	s	RES, ADJ, METAL 47K
RV21	1-238-225-11	s	RES, ADJ, METAL 47K
RV22	1-238-225-11	s	RES, ADJ, METAL 47K

SW-445 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7520-515-A	o	MOUNTED CIRCUIT BOARD "SW-445"
1pc	1-569-193-11	o	CONTACT
CN3	1-569-195-11	s	HOUSING, CONNECTOR 2P
CN8	1-569-195-11	s	HOUSING, CONNECTOR 2P
S1	1-553-739-21	s	SWITCH, PUSH
S2	1-553-739-21	s	SWITCH, PUSH
S3	1-553-739-21	s	SWITCH, PUSH
SW001	1-554-486-00	s	SWITCH, TOGGLE

SW-446 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7520-516-A	o	MOUNTED CIRCUIT BOARD "SW-446"
1pc	1-562-736-11	o	HOUSING, 3P
1pc	1-564-831-11	o	CONTACT
1pc	1-569-193-11	o	CONTACT
CN4	1-569-196-11	o	HOUSING, 3P
S1	1-570-985-11	s	SWITCH, TOGGLE
S2	1-570-985-11	s	SWITCH, TOGGLE

TG-72 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7515-216-A	o	MOUNTED CIRCUIT BOARD "TG-72(N)"
C4	1-163-251-11	s	CERAMIC 100PF 5% 50V
C6	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C7	1-135-125-21	s	TANTALUM CHIP 33uF 20% 10V
C9	1-135-161-21	s	TANTALUM CHIP 22uF 10% 10V
C19	1-135-125-21	s	TANTALUM CHIP 33uF 20% 10V
CN1	1-563-684-31	o	RECEPTACLE, BOARD TO BOARD 11P
CN2	1-563-685-31	o	RECEPTACLE, BOARD TO BOARD 12P
CN3	1-563-684-31	o	RECEPTACLE, BOARD TO BOARD 11P
CN4	1-563-684-31	o	RECEPTACLE, BOARD TO BOARD 11P
CP1	1-577-181-11	s	OSCILLATOR, CRYSTAL
IC1	8-752-333-20	s	IC CXD1255Q
IC2	8-759-925-83	s	IC SN74HC27NS
IC3	8-759-985-18	s	IC 74AC08SJ
IC4	8-759-204-96	s	IC TC74HC04F
IC5	8-759-925-76	s	IC SN74HC08NS
IC6	8-759-031-43	s	IC SC14S81F
L1	1-408-781-00	s	CHIP 22uH
L2	1-408-781-00	s	CHIP 22uH

VA-105B BOARD

Ref. No. or Q'ty	Part No.	SP	Description
C1	1-163-235-11	s	CERAMIC 22PF 5% 50V
C2	1-163-088-00	s	CERAMIC CHIP 5PF 0.25PF 50V
C3	1-163-088-00	s	CERAMIC CHIP 5PF 0.25PF 50V
C7	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C8	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C9	1-135-216-11	s	TANTAL,10uF 20% 10V
C10	1-135-216-11	s	TANTAL,10uF 20% 10V
C11	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C12	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C13	1-163-088-00	s	CERAMIC CHIP 5PF 0.25PF 50V
C14	1-135-159-21	s	TANTALUM CHIP 10uF 20% 16V
C15	1-135-072-21	s	TANTALUM CHIP 0.22uF 20% 35V
C18	1-135-149-21	s	TANTALUM CHIP 2.2uF 10% 10V
C19	1-163-251-11	s	CERAMIC 100PF 5% 50V
C20	1-135-072-21	s	TANTALUM CHIP 0.22uF 20% 35V
C21	1-135-145-11	s	TANTALUM CHIP 0.47uF 20% 25V
C23	1-135-216-11	s	TANTAL,10uF 20% 10V
CN1	1-566-095-11	s	PIN, BOARD TO BOARD 10P
CN2	1-566-095-11	s	PIN, BOARD TO BOARD 10P
D4	8-719-104-34	s	DIODE 1S2836
D5	8-719-104-34	s	DIODE 1S2836
IC1	8-759-981-51	s	IC RC1496M
IC2	8-759-906-53	s	IC TL062CPS
Q1	8-729-109-41	s	TRANSISTOR 2SK94-X1
Q2	8-729-109-41	s	TRANSISTOR 2SK94-X1
Q3	8-729-100-66	s	TRANSISTOR 2SC1623
Q4	8-729-100-66	s	TRANSISTOR 2SC1623
Q5	8-729-122-63	s	TRANSISTOR 2SA1226
Q6	8-729-100-66	s	TRANSISTOR 2SC1623
Q7	8-729-216-22	s	TRANSISTOR 2SA1162
Q8	8-729-402-19	s	TRANSISTOR XN6501
Q9	8-729-109-41	s	TRANSISTOR 2SK94-X1
Q11	8-729-109-41	s	TRANSISTOR 2SK94-X1
Q14	8-729-122-63	s	TRANSISTOR 2SA1226
Q15	8-729-175-73	s	TRANSISTOR 2SC2757
Q17	8-729-216-22	s	TRANSISTOR 2SA1162
Q18	8-729-109-41	s	TRANSISTOR 2SK94-X1
R18	1-216-654-11	s	METAL CHIP 1.3K 0.50% 1/10W

VA-105G BOARD

Ref. No. or Q'ty	Part No.	SP	Description
C1	1-163-235-11	s	CERAMIC 22PF 5% 50V
C7	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C8	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C9	1-135-216-11	s	TANTAL,10uF 20% 10V
C10	1-135-216-11	s	TANTAL,10uF 20% 10V
C11	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C12	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C13	1-163-088-00	s	CERAMIC CHIP 5PF 0.25PF 50V
C14	1-135-159-21	s	TANTALUM CHIP 10uF 20% 16V
C15	1-135-072-21	s	TANTALUM CHIP 0.22uF 20% 35V
C18	1-135-149-21	s	TANTALUM CHIP 2.2uF 10% 10V
C19	1-163-251-11	s	CERAMIC 100PF 5% 50V
C20	1-135-072-21	s	TANTALUM CHIP 0.22uF 20% 35V
C21	1-135-145-11	s	TANTALUM CHIP 0.47uF 20% 25V
C23	1-135-216-11	s	TANTAL,10uF 20% 10V
C25	1-163-086-00	s	CERAMIC CHIP 3PF 0.25PF 50V
CN1	1-566-095-11	s	PIN, BOARD TO BOARD 10P
CN2	1-566-095-11	s	PIN, BOARD TO BOARD 10P
D4	8-719-104-34	s	DIODE 1S2836
D5	8-719-104-34	s	DIODE 1S2836
IC1	8-759-981-51	s	IC RC1496M
IC2	8-759-906-53	s	IC TL062CPS
Q1	8-729-109-41	s	TRANSISTOR 2SK94-X1
Q2	8-729-109-41	s	TRANSISTOR 2SK94-X1
Q3	8-729-100-66	s	TRANSISTOR 2SC1623
Q4	8-729-100-66	s	TRANSISTOR 2SC1623
Q5	8-729-122-63	s	TRANSISTOR 2SA1226
Q6	8-729-100-66	s	TRANSISTOR 2SC1623
Q7	8-729-216-22	s	TRANSISTOR 2SA1162
Q8	8-729-402-19	s	TRANSISTOR XN6501
Q9	8-729-109-41	s	TRANSISTOR 2SK94-X1
Q11	8-729-109-41	s	TRANSISTOR 2SK94-X1
Q14	8-729-122-63	s	TRANSISTOR 2SA1226
Q15	8-729-175-73	s	TRANSISTOR 2SC2757
Q17	8-729-216-22	s	TRANSISTOR 2SA1162
Q18	8-729-109-41	s	TRANSISTOR 2SK94-X1
R18	1-216-654-11	s	METAL CHIP 1.3K 0.50% 1/10W
R43	1-216-127-11	s	METAL, 1.8M 5% 1/10W

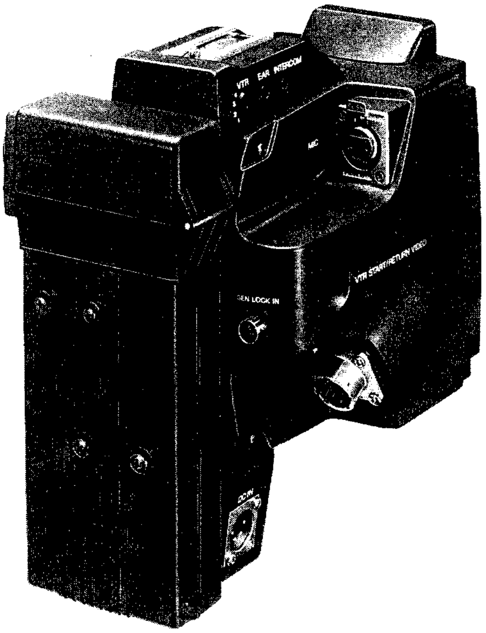
VA-105R BOARD

Ref. No. or Q'ty	Part No.	SP	Description
C1	1-163-235-11	s	CERAMIC 22PF 5% 50V
C7	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C8	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C9	1-135-216-11	s	TANTAL,10uF 20% 10V
C10	1-135-216-11	s	TANTAL,10uF 20% 10V
C11	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C12	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C13	1-163-088-00	s	CERAMIC CHIP 5PF 0.25PF 50V
C14	1-135-159-21	s	TANTALUM CHIP 10uF 20% 16V
C15	1-135-072-21	s	TANTALUM CHIP 0.22uF 20% 35V
C18	1-135-149-21	s	TANTALUM CHIP 2.2uF 10% 10V
C19	1-163-251-11	s	CERAMIC 100PF 5% 50V
C20	1-135-072-21	s	TANTALUM CHIP 0.22uF 20% 35V
C21	1-135-145-11	s	TANTALUM CHIP 0.47uF 20% 25V
C23	1-135-216-11	s	TANTAL,10uF 20% 10V
C25	1-163-086-00	s	CERAMIC CHIP 3PF 0.25PF 50V
CN1	1-566-095-11	s	PIN, BOARD TO BOARD 10P
CN2	1-566-095-11	s	PIN, BOARD TO BOARD 10P
D4	8-719-104-34	s	DIODE 1S2836
D5	8-719-104-34	s	DIODE 1S2836
IC1	8-759-981-51	s	IC RC1496M
IC2	8-759-906-53	s	IC TL062CPS
Q1	8-729-109-41	s	TRANSISTOR 2SK94-X1
Q2	8-729-109-41	s	TRANSISTOR 2SK94-X1
Q3	8-729-100-66	s	TRANSISTOR 2SC1623
Q4	8-729-100-66	s	TRANSISTOR 2SC1623
Q5	8-729-122-63	s	TRANSISTOR 2SA1226
Q6	8-729-100-66	s	TRANSISTOR 2SC1623
Q7	8-729-216-22	s	TRANSISTOR 2SA1162
Q8	8-729-402-19	s	TRANSISTOR XN6501
Q9	8-729-109-41	s	TRANSISTOR 2SK94-X1
Q11	8-729-109-41	s	TRANSISTOR 2SK94-X1
Q14	8-729-122-63	s	TRANSISTOR 2SA1226
Q15	8-729-175-73	s	TRANSISTOR 2SC2757
Q17	8-729-216-22	s	TRANSISTOR 2SA1162
Q18	8-729-109-41	s	TRANSISTOR 2SK94-X1
R18	1-216-654-11	s	METAL CHIP 1.3K 0.50% 1/10W
R43	1-216-127-11	s	METAL, 1.8M 5% 1/10W

FRAME

Ref. No. or Q'ty	Part No.	SP	Description
	1-542-112-11	s	MICROPHONE (C-2025)
	1-547-463-11	o	FILTER UNIT, OPTICAL
	1-574-145-11	s	WIRE, FLAT TYPE (30 CORE)
	1-590-168-11	s	WIRE, FLAT TYPE (16 CORE)
	1-942-381-12	s	HARNESS (LENS)
	1-946-627-11	o	HARNESS (RM)
	8-814-189-31	s	MICROPHONE, BUILT-IN (C-1007A)
CN101	1-562-782-21	s	RECEPTACLE, 10P, FEMALE "REMOTE"
	1-569-202-11	o	HOUSING, 9P
	1-569-193-11	o	CONTACT
	1-569-191-11	o	TERMINAL, SOLDERLESS
CN102	1-561-320-00	s	SOCKET, DIN 8P "VF"
CN104	1-562-222-41	s	CONNECTOR,6P,FEMALE
	1-562-151-11	o	HOUSING, 6P
	1-569-193-11	o	CONTACT
CN105	1-561-781-11	s	CONNECTOR, BNC, FEMALE
S102	1-553-972-00	o	TOGGLE "POWER"

CAMERA ADAPTOR



SPECIFICATIONS

Inputs/Outputs	VTR/CCU/CMA connector: Sony Q-type, 14-pin DC IN: XLR-type, 4-pin MIC IN: XLR-type, 3-pin GEN LOCK IN: BNC-type EAR: mini jack INTERCOM: mini intercom jack S VIDEO OUT: mini DIN-type, 4-pin AUDIO OUT: phono jack
Power requirements	12 V DC
Power consumption	0.8 W
Operating temperature	–5°C to +45°C (23°F to 113°F)
Storage temperature	–20°C to +60°C (–4°F to +140°F)
Weight	1.2 kg (2 lb 10 oz)
Dimensions	118 × 205 × 187 mm ($4^{3}/_{4} \times 8^{1}/_{3} \times 7^{3}/_{8}$ inches)
Supplied accessories	Screws for attaching the CA-327/327P M4 × 6 (2) M4 × 12 (2) Operating instructions (1)

Design and specifications are subject to change without notice.

SONY®

SERVICE MANUAL

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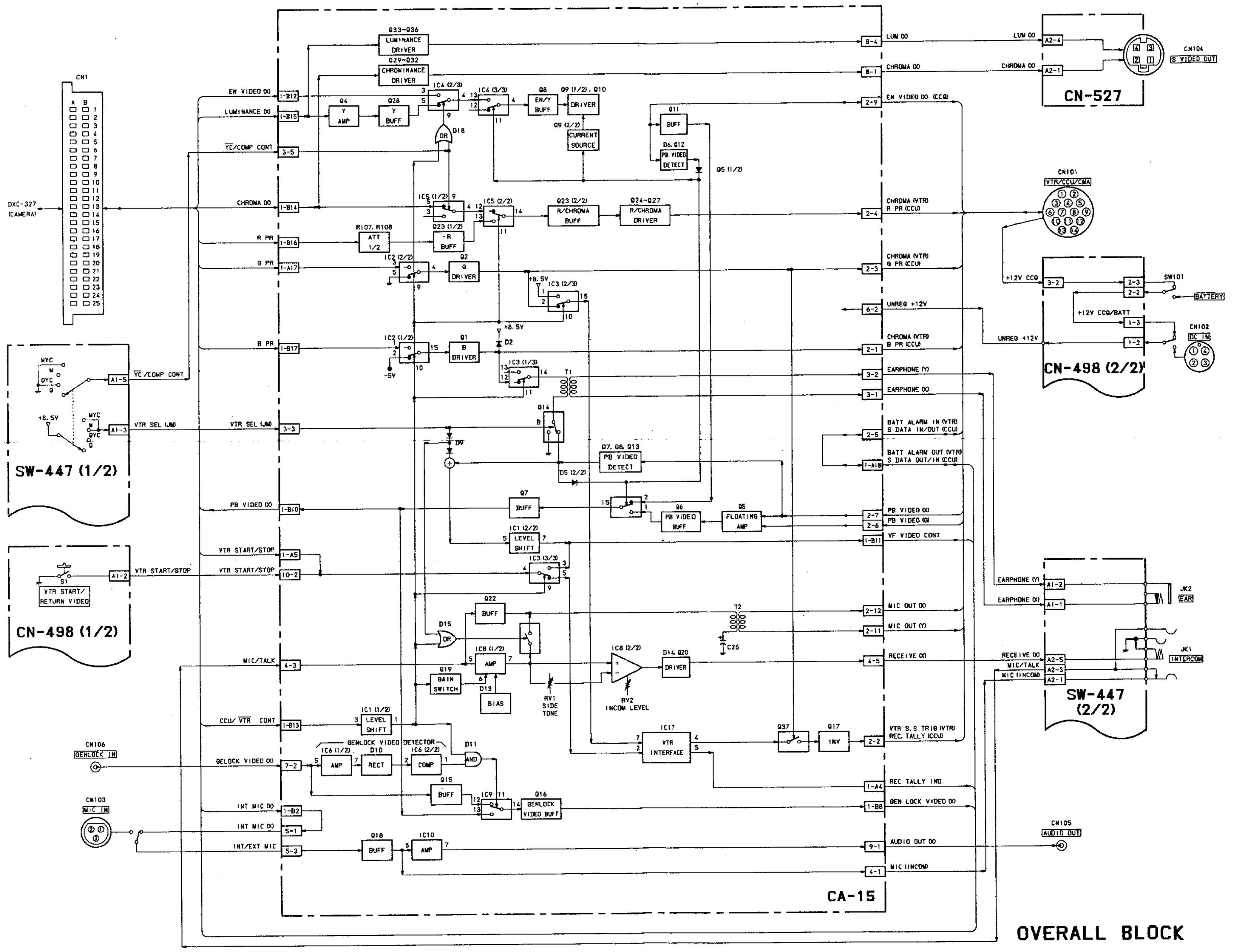
SECTION A
BLOCK DIAGRAM

OVERALL BLOCK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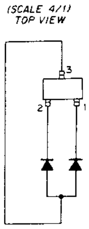
B PR
1-B17
IC2 (1/2)
-5V
Q1
B DRIVER
+8.5V
D2
IC3 (1/3)
T1
Q14
MYC
M
GYC
G
A1-5
YC/COMP CONT
+8.5V
A1-3
VTR SEL (J/M)
SW-447 (1/2)
VTR SEL (J/M)
3-3
D9
Q7, Q8, Q13
PB VIDEO DETECT
D5 (2/2)
PB VIDEO (X)
1-B10
Q7
BUFF
Q6
PB VIDEO BUFF
Q5
FLOATING AMP
IC1 (2/2)
LEVEL SHIFT
VTR START/STOP
1-A5
S1
VTR START/ RETURN VIDEO
A1-2
VTR START/STOP
VTR START/STOP
10-2
CN-498 (1/2)
IC3 (3/3)
Q22
BUFF
D15
OR
IC8 (1/2)
AMP
MIC/TALK
4-3
Q19
GAIN SWITCH
D13
BIAS
RV1 SIDE TONE
IC8 (2/2)
RV2 INCOM LEVEL
D14, Q20
DRIVER
T2
C25
CCU/ VTR CONT
1-B13
IC1 (1/2)
LEVEL SHIFT
GENLOCK VIDEO DETECTOR
IC6 (1/2)
AMP
D10
RECT
IC6 (2/2)
COMP
D11
AND
CN106
GENLOCK IN
GELOCK VIDEO (X)
7-2
Q15
BUFF
IC9
Q16
GENLOCK VIDEO BUFF
CN103
MIC IN
INT MIC (X)
1-B2
INT MIC (X)
5-1
INT/EXT MIC
5-3
Q18
BUFF
IC10
AMP
IC17
VTR INTERFACE
Q37
Q17
INV
Q11
BUFF
D6, Q12
PB VIDEO DETECT
Q5 (1/2)
8-4
LUM (X)
8-1
CHROMA (X)
2-9
EN VIDEO (X) (CCU)
2-4
CHROMA (VTR)
R PR (CCU)
2-3
CHROMA (VTR)
G PR (CCU)
6-2
UNREG +12V
2-1
CHROMA (VTR)
B PR (CCU)
3-2
EARPHONE (Y)
3-1
EARPHONE (X)
2-5
BATT ALARM IN (VTR)
S DATA IN/OUT (CCU)
1-A18
BATT ALARM OUT (VTR)
S DATA OUT/IN (CCU)
2-7
PB VIDEO (X)
2-6
PB VIDEO (G)
1-B11
VF VIDEO CONT
2-12
MIC OUT (X)
2-11
MIC OUT (Y)
4-5
RECEIVE (X)
2-2
VTR S.S TRIG (VTR)
REC. TALLY (CCU)
1-A4
REC TALLY IND
1-B8
GEN LOCK VIDEO (X)
9-1
AUDIO OUT (X)
4-1
MIC (INCOM)
CA-15
LUM (X)
A2-4
CHROMA (X)
A2-1
CN104
S VIDEO OUT
CN-527
CN101
VTR/CCU/CMA
+12V CCU
3-2
2-3
2-2
SW101
BATTERY
+12V CCU/BATT
1-3
UNREG +12V
1-2
CN102
DC IN
CN-498 (2/2)
EARPHONE (Y)
A1-2
EARPHONE (X)
A1-1
JK2
EAR
RECEIVE (X)
A2-5
MIC/TALK
A2-3
MIC (INCOM)
A2-1
JK1
INTERCOM
SW-447 (2/2)
CN105
AUDIO OUT
OVERALL BLOCK

SECTION B
SEMICONDUCTOR

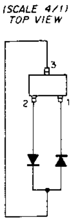
The circuit diagram of IC is obtained from the IC data book published by the manufacturer.

TYPE	PAGE
1S2836	B-1
1SS226	B-1
2SA1162	B-1
2SC1623	B-1
2SC2878	B-1
2SK94	B-1
CX518	B-2
LM2903M	B-2
MA152WK	B-1
MC14053BF	B-2
RC2043MD	B-2
RC4560M	B-2
RD ? ?M-B ?	B-1
SB05-05CP	B-1
uPC4558G2	B-2
XN4608	B-1
XN6401	B-1
XN6501	B-1
XN6534	B-1

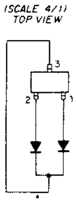
DIODE, TRANSISTOR


(SCALE 4/1)
TOP VIEW
3
2
1

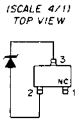
1S2836


(SCALE 4/1)
TOP VIEW
3
2
1

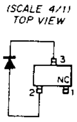
1SS226


(SCALE 4/1)
TOP VIEW
3
2
1

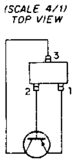
MA152WK


(SCALE 4/1)
TOP VIEW
3
NC
2
1

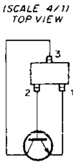
RD ? ?M-B ?


(SCALE 4/1)
TOP VIEW
3
NC
2
1

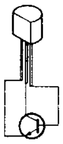
SB05-05CP


(SCALE 4/1)
TOP VIEW
3
2
1

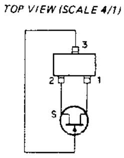
2SA1162


(SCALE 4/1)
TOP VIEW
3
2
1

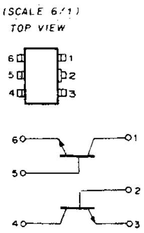
2SC1623



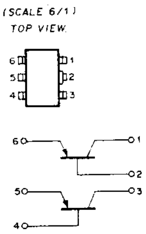
2SC2878


TOP VIEW (SCALE 4/1)
3
2
1
S

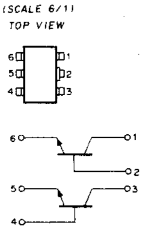
2SK94


(SCALE 6/1)
TOP VIEW
6
5
4
1
2
3
6
5
1
2
4
3

XN4608


(SCALE 6/1)
TOP VIEW
6
5
4
1
2
3
6
1
2
5
3
4

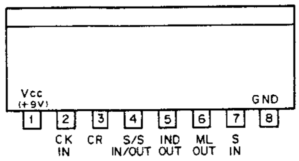
XN6401

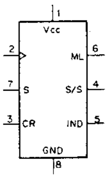

(SCALE 6/1)
TOP VIEW
6
5
4
1
2
3
6
1
2
5
3
4

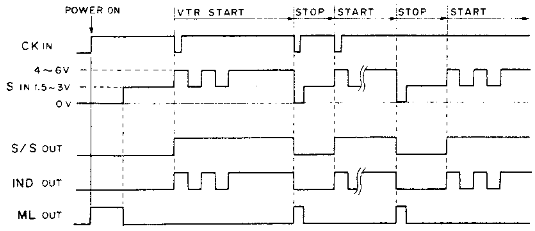
XN6501
XN6534

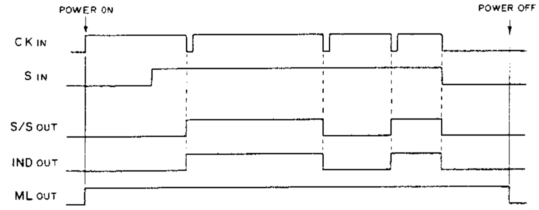
CX518 (SONY)

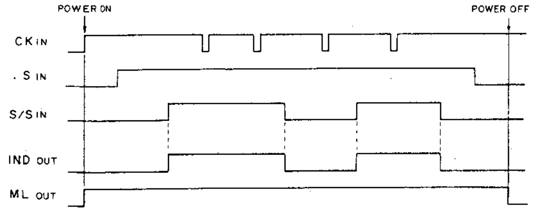
INTERFACE CIRCUIT BETWEEN VTR AND CAMERA
- SIDE VIEW -


Vcc
(+9V)
GND
1
2
3
4
5
6
7
8
CK IN
CR
S/S IN/OUT
IND OUT
ML OUT
S IN


1
Vcc
2
ML
6
7
S
S/S
4
3
CR
IND
5
GND
8

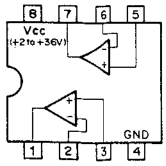

POWER ON
VTR START
STOP
START
STOP
START
CK IN
4~6V
S IN 1.5~3V
0V
S/S OUT
IND OUT
ML OUT


POWER ON
POWER OFF
CK IN
S IN
S/S OUT
IND OUT
ML OUT


POWER ON
POWER OFF
CK IN
S IN
S/S IN
IND OUT
ML OUT

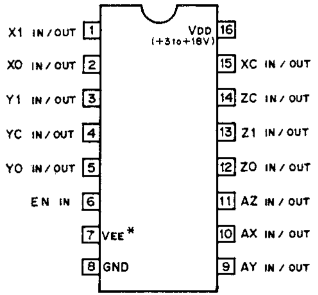
LM2903M (RAYTHEON) FLAT PACKAGE

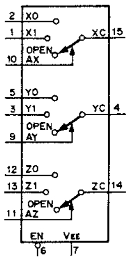
DUAL VOLTAGE COMPARATORS
- TOP VIEW -


8
7
6
5
Vcc
(+2 to +36V)
GND
1
2
3
4

MC14053BF (MOTOROLA) FLAT PACKAGE

C-MOS TRIPLE 2-CHANNEL ANALOG MULTIPLEXER/DEMULTIPLEXER
- TOP VIEW -


X1 IN/OUT 1
X0 IN/OUT 2
Y1 IN/OUT 3
YC IN/OUT 4
Y0 IN/OUT 5
EN IN 6
7 VEE*
8 GND
VDD (+3 to +18V) 16
15 XC IN/OUT
14 ZC IN/OUT
13 Z1 IN/OUT
12 Z0 IN/OUT
11 AZ IN/OUT
10 AX IN/OUT
9 AY IN/OUT


2 X0
1 X1
XC 15
OPEN
10 AX
5 Y0
3 Y1
YC 4
OPEN
9 AY
12 Z0
13 Z1
ZC 14
OPEN
11 AZ
EN
VEE
6
7

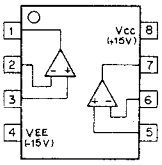
VEE*; VDD−VEE: +3 to +18V

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE.

CONT. INPUTS		ON CHANNEL
EN	A (X,Y,Z,)	
0	0	0
0	1	1
1	X	OPEN

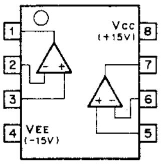
RC2043MD (RAYTHEON) FLAT PACKAGE

OPERATIONAL AMPLIFIER
- TOP VIEW -


1
2
3
4
VEE
(-15V)
Vcc
(+15V)
8
7
6
5

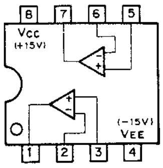
RC4560M (RAYTHEON) FLAT PACKAGE

OPERATIONAL AMPLIFIER
- TOP VIEW -


1
2
3
4
VEE
(-15V)
Vcc
(+15V)
8
7
6
5

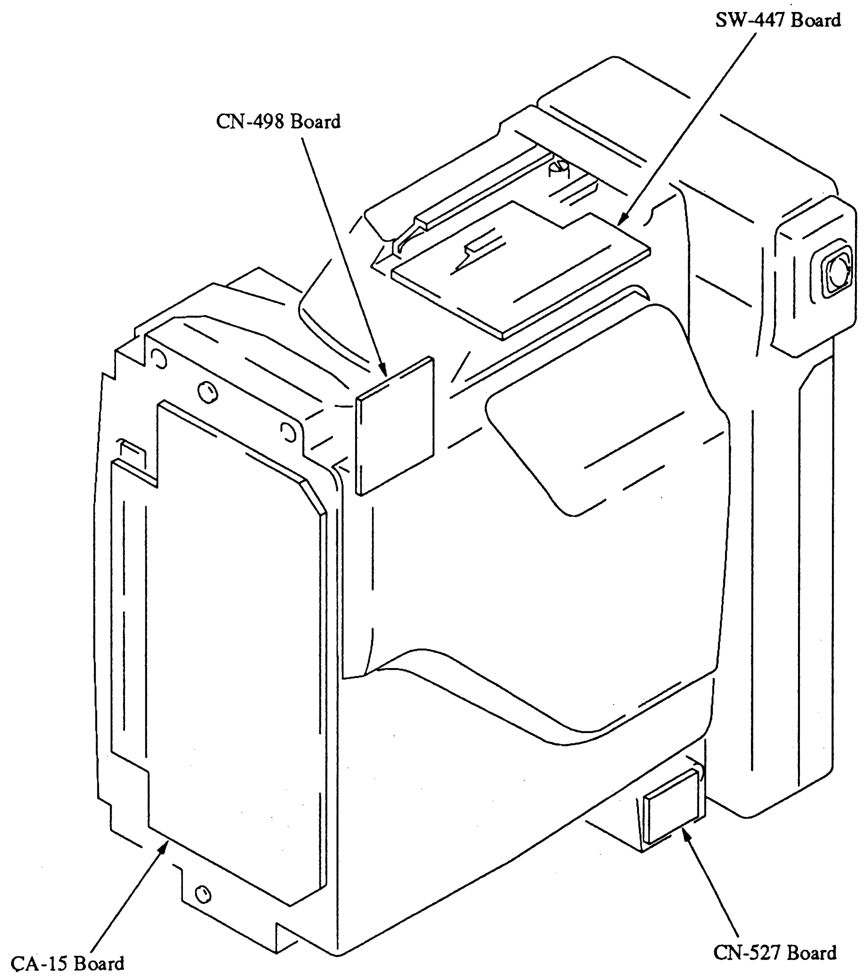
uPC4558G2 (NEC) FLAT PACKAGE

OPERATIONAL AMPLIFIER
- TOP VIEW -


8
7
6
5
Vcc
(+15V)
(-15V)
VEE
1
2
3
4

SECTION C

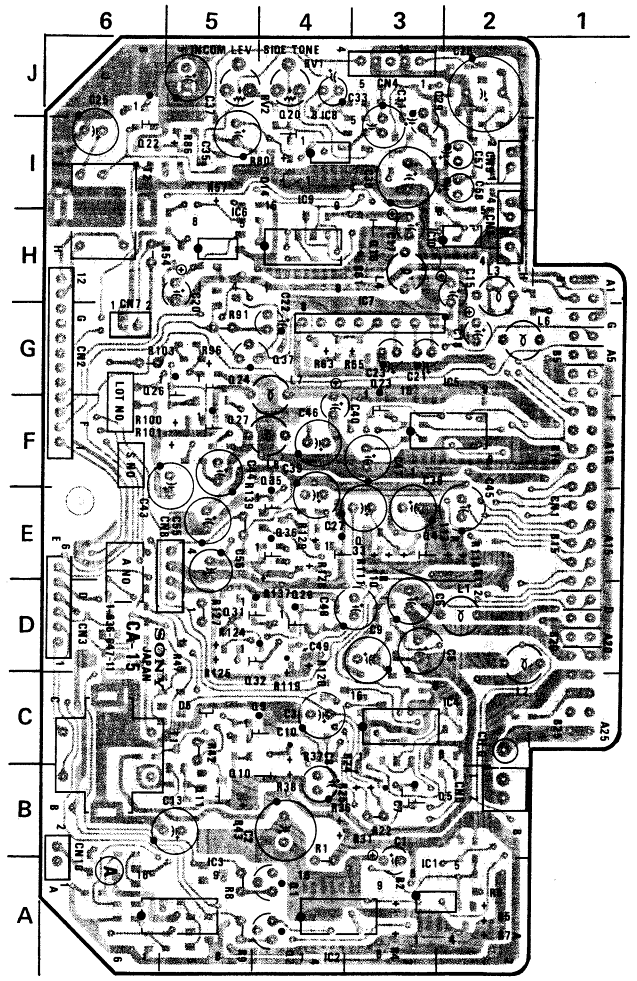
SCHEMATIC DIAGRAMS AND BOARD ILLUSTRATIONS


SW-447 Board
CN-498 Board
CA-15 Board
CN-527 Board

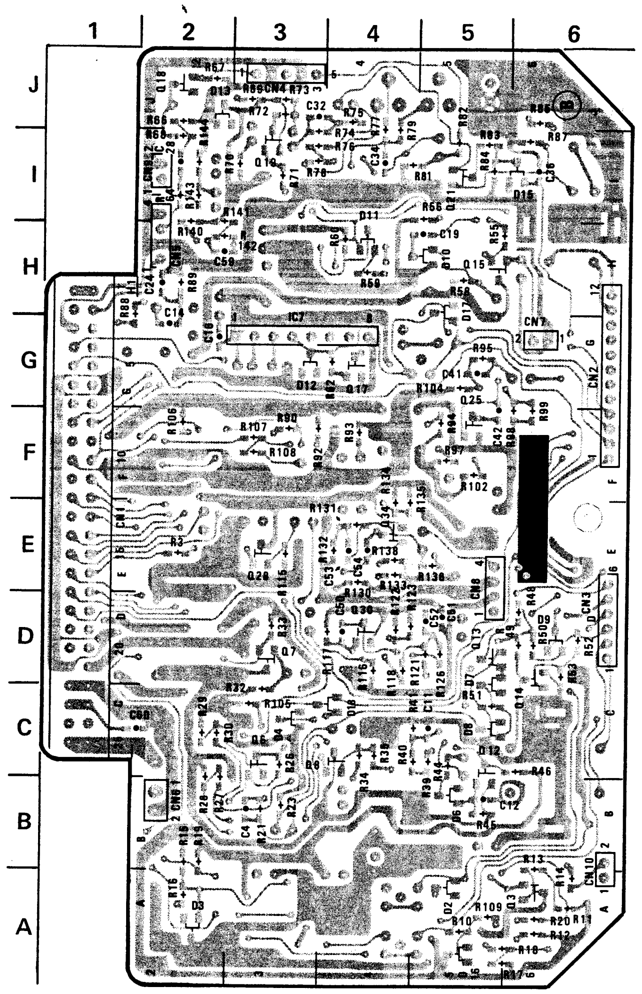
CA-15 BOARD

CA-15 (1-636-647-11)

CN1	E-1
CN2	G-6
CN3	D-6
CN4	J-3
CN5	H-2
CN6	B-2
CN7	G-6
CN8	E-5
CN9	I-2
CN10	A-6
D2	A-5
D3	A-2
D4	C-3
D5	C-5
D6	B-5
D7	D-5
D8	C-5
D9	D-6
D10	H-5
D11	I-4
D12	G-3
D13	J-2
D14	I-4
D15	I-6
D16	A-5
D17	H-5
D18	C-4
IC1	A-3
IC2	A-4
IC3	A-5
IC4	C-2
IC5	G-2
IC6	H-5
IC7	G-3
IC8	J-4
IC9	I-4
IC10	H-3
Q1	A-4
Q2	A-4
Q3	A-6
Q4	E-3
Q5	B-2
Q6	C-3
Q7	D-3
Q8	C-3
Q9	C-4
Q10	B-5
Q11	B-5
Q12	C-5
Q13	D-5
Q14	C-6
Q15	H-5
Q16	H-3
Q17	G-4
Q18	J-2
Q19	I-3
Q20	J-4
Q21	I-5
Q22	I-6
Q23	G-3
Q24	G-5
Q25	G-5
Q26	G-6
Q27	F-5
Q28	E-3
Q29	D-4
Q30	D-4
Q31	D-5
Q32	C-4
Q33	E-3
Q34	E-4
Q35	F-4
Q36	E-4
Q37	G-4
RV1	J-4
RV2	J-4
T1	C-5
T2	I-6



1-636-647-11 COMPONENT SIDE



1-636-647-11 SOLDERING SIDE

CA-15 (1-636-647-11)

CN1	E-1
CN2	G-6
CN3	D-6
CN4	J-3
CN5	H-2
CN6	B-2
CN7	G-6
CN8	E-5
CN9	I-2
CN10	A-6
D2	A-5
D3	A-2
D4	C-3
D5	C-5
D6	B-5
D7	D-5
D8	C-5
D9	D-6
D10	H-5
D11	I-4
D12	G-3
D13	J-2
D14	I-4
D15	I-6
D16	A-5
D17	H-5
D18	C-4
IC1	A-3
IC2	A-4
IC3	A-5
IC4	C-2
IC5	G-2
IC6	H-5
IC7	G-3
IC8	J-4
IC9	I-4
IC10	H-3
Q1	A-4
Q2	A-4
Q3	A-6
Q4	E-3
Q5	B-2
Q6	C-3
Q7	D-3
Q8	C-3
Q9	C-4
Q10	B-5
Q11	B-5
Q12	C-5
Q13	D-5
Q14	C-6
Q15	H-5
Q16	H-3
Q17	G-4
Q18	J-2
Q19	I-3
Q20	J-4
Q21	I-5
Q22	I-6
Q23	G-3
Q24	G-5
Q25	G-5
Q26	G-6
Q27	F-5
Q28	E-3
Q29	D-4
Q30	D-4
Q31	D-5
Q32	C-4
Q33	E-3
Q34	E-4
Q35	F-4
Q36	E-4
Q37	G-4
RV1	J-4
RV2	J-4
T1	C-5
T2	I-6

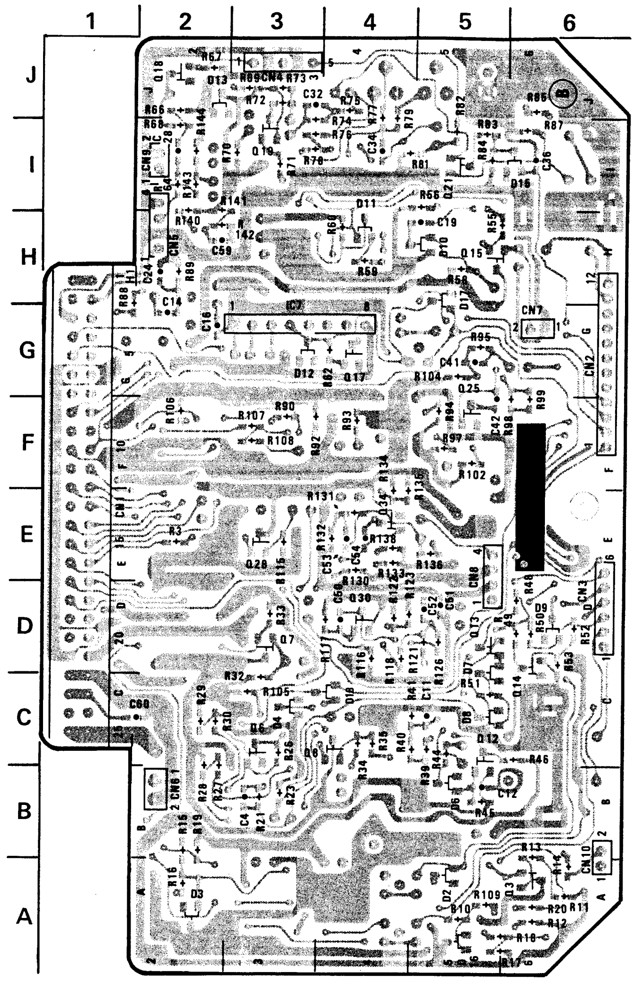
CN-49

1-636-66

CN-527

1-636-740-1

SW-447

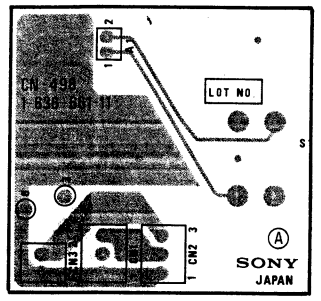

1
2
3
4
5
6
J
I
H
G
F
E
D
C
B
A

1-636-647-11 SOLDERING SIDE

CA-15 (1-636-647-11)

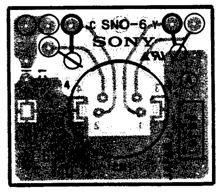
CN1	E-1
CN2	G-6
CN3	D-6
CN4	J-3
CN5	H-2
CN6	B-2
CN7	G-6
CN8	E-5
CN9	I-2
CN10	A-6
D2	A-5
D3	A-2
D4	C-3
D5	C-5
D6	B-5
D7	D-5
D8	C-5
D9	D-6
D10	H-5
D11	I-4
D12	G-3
D13	J-2
D14	I-4
D15	I-6
D16	A-5
D17	H-5
D18	C-4
IC1	A-3
IC2	A-4
IC3	A-5
IC4	C-2
IC5	G-2
IC6	H-5
IC7	G-3
IC8	J-4
IC9	I-4
IC10	H-3
Q1	A-4
Q2	A-4
Q3	A-6
Q4	E-3
Q5	B-2
Q6	C-3
Q7	D-3
Q8	C-3
Q9	C-4
Q10	B-5
Q11	B-5
Q12	C-5
Q13	D-5
Q14	C-6
Q15	H-5
Q16	H-3
Q17	G-4
Q18	J-2
Q19	I-3
Q20	J-4
Q21	I-5
Q22	I-6
Q23	G-3
Q24	G-5
Q25	G-5
Q26	G-6
Q27	F-5
Q28	E-3
Q29	D-4
Q30	D-4
Q31	D-5
Q32	C-4
Q33	E-3
Q34	E-4
Q35	F-4
Q36	E-4
Q37	G-4
RV1	J-4
RV2	J-4
T1	C-5
T2	I-6

CN-498 BOARD


CN-498
1-636-661-11
LOT NO
CN1
CN2
SONY
JAPAN

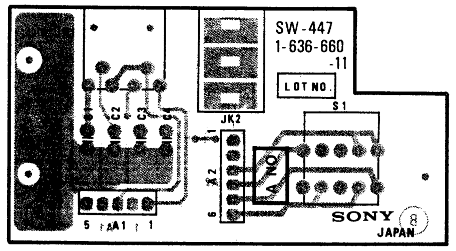
1-636-661-11 COMPONENT SIDE

CN-527 BOARD



1-636-740-12 COMPONENT SIDE

SW-447 BOARD


SW-447
1-636-660
-11
LOT NO.
S1
JK2
SONY
JAPAN

1-636-660-11 COMPONENT SIDE

CA-15 BOARD

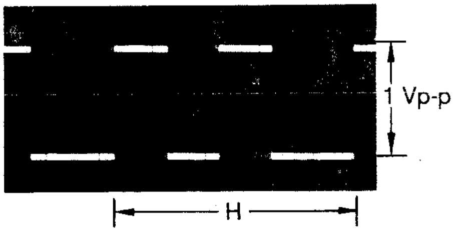
注意:

1. DC電圧はデジタル電圧計による値。
2. 波形写真、及びDC電圧は下記条件での測定。
   - グレースケールチャートを撮像し､波形モニターにて､ビデオ出力の白レベルが100 IREになる様にレンズ絞りをセットする。
   - GAIN : 0 dB
   - WHITE BAL : PRE
   - ABL : OFF
   - SHUTTER : OFF
   - ZEBRA : OFF
   - VF MARKER : OFF
   - PHASE : 0°
   - BARS : ON

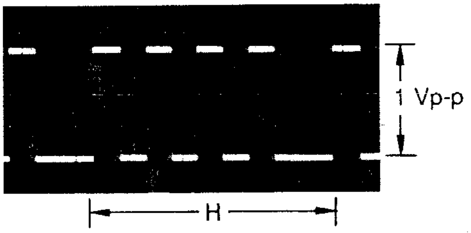
NOTE:

1. All voltage are DC, measured with a digital voltmeter.
2. All waveforms are taken and DC voltage is measured in condition below.
   - Shoot the grayscale chart. Adjust lens iris so that a white level is 100 IRE on the waveform monitor.
   - GAIN : 0 dB
   - WHITE BAL : PRE
   - ABL : OFF
   - SHUTTER : OFF
   - ZEBRA : OFF
   - VF MARKER : OFF
   - PHASE : 0°
   - BARS : ON

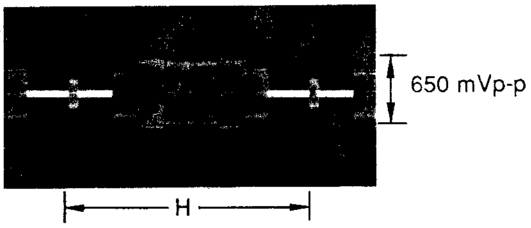
CN1-B16 pin



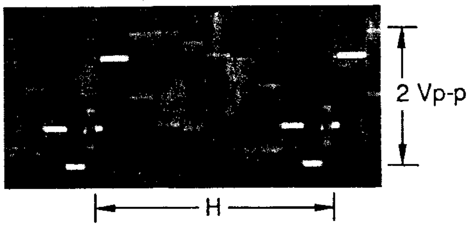
CN1-B17 pin



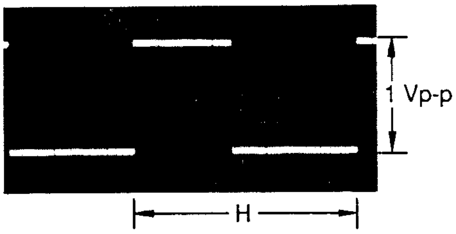
CN1-B14 pin



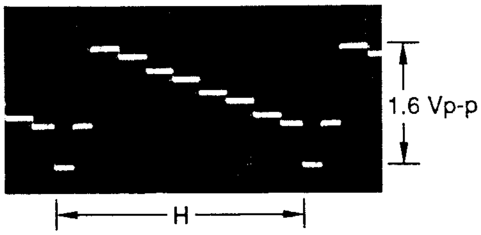
CN1-B12 pin



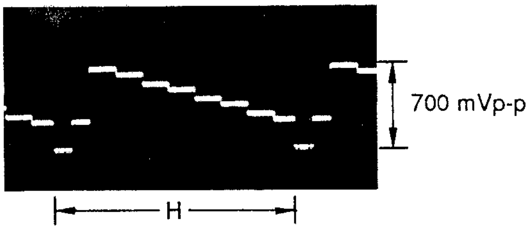
CN1-A17 pin



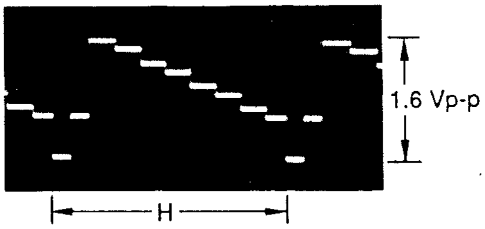
CN2-9 pin



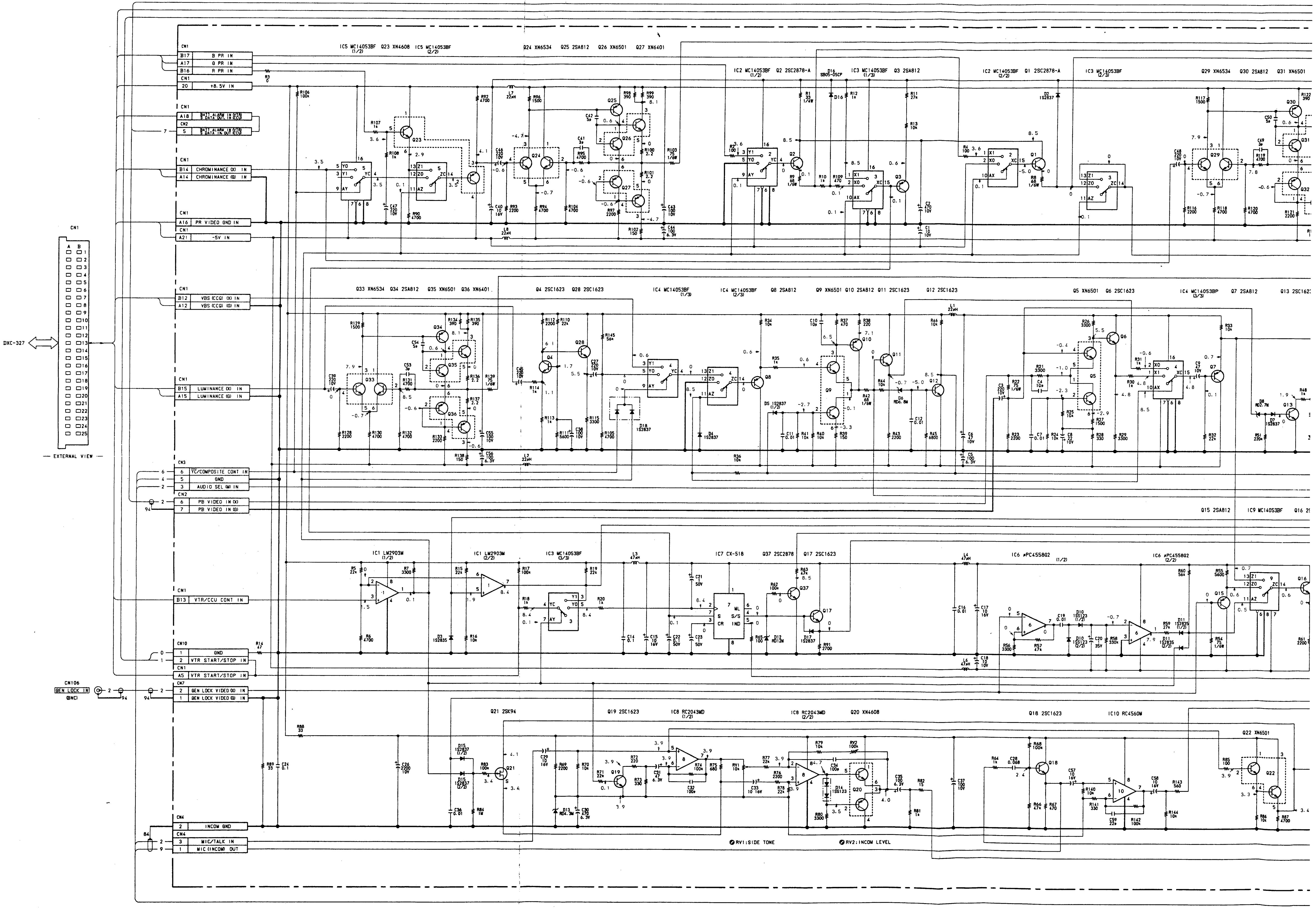
CN1-B15 pin



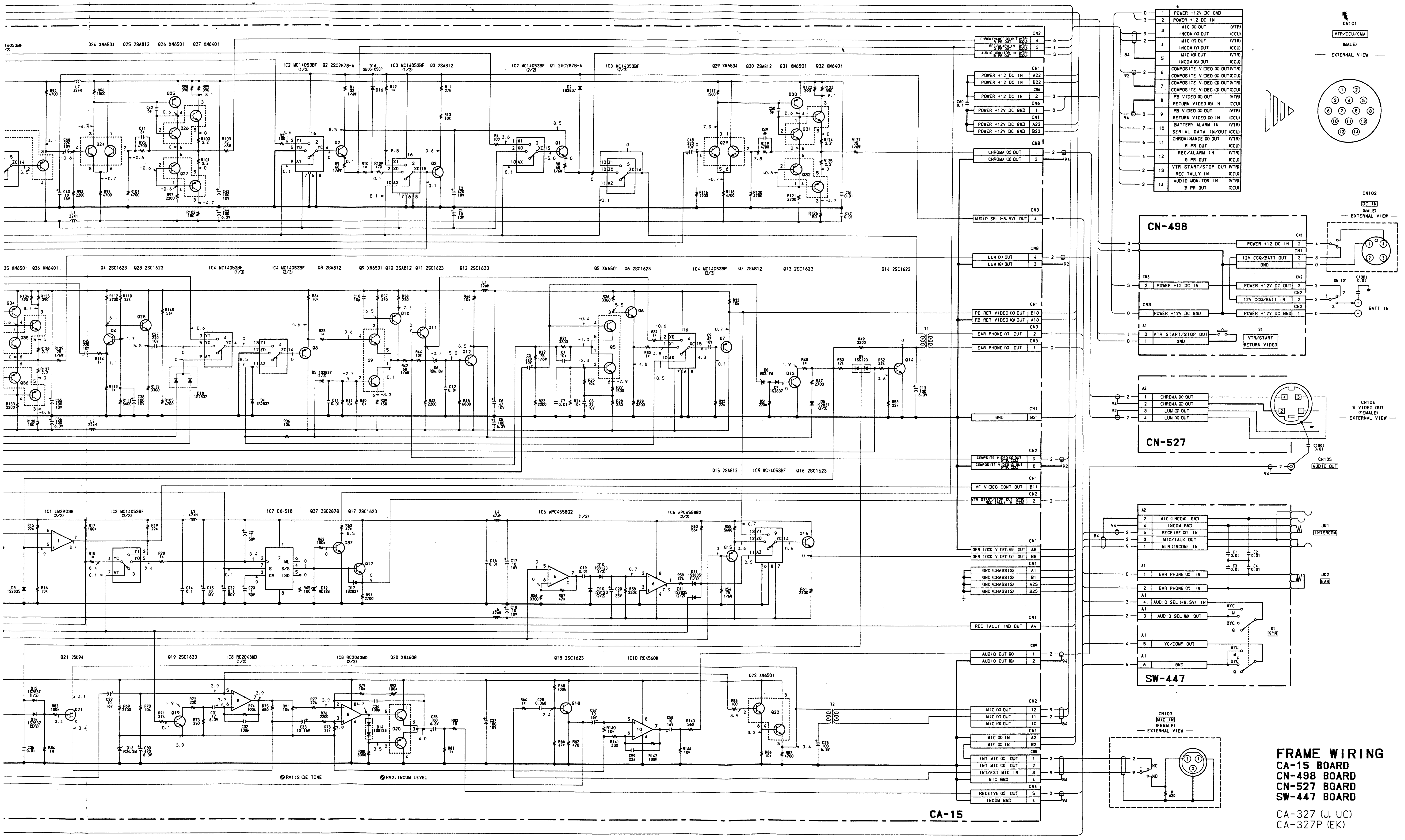
Q28-emitter



CA-15 BOARD
CN-498 BOARD
CN-527 BOARD
SW-447 BOARD


DXC-327
CN1
EXTERNAL VIEW
B PR IN
G PR IN
R PR IN
+8.5V IN
BATT ALARM IN (VTR)
S DATA OUT IN (CCU)
CHROMINANCE (X) IN
CHROMINANCE (G) IN
PR VIDEO GND IN
-5V IN
VBS (CG) (X) IN
VBS (CG) (G) IN
LUMINANCE (X) IN
LUMINANCE (G) IN
CN3
YC/COMPOSITE CONT IN
GND
AUDIO SEL (M) IN
CN2
PB VIDEO IN (X)
PB VIDEO IN (G)
VTR/CCU CONT IN
CN10
GND
VTR START/STOP IN
CN106
GEN LOCK IN
(BNC)
CN7
GEN LOCK VIDEO (X) IN
GEN LOCK VIDEO (G) IN
CN4
INCOM GND
MIC/TALK IN
MIC (INCOM) OUT
IC5 MC14053BF (1/2)
Q23 XN4608
IC5 MC14053BF (2/2)
Q24 XN6534
Q25 2SA812
Q26 XN6501
Q27 XN6401
IC2 MC14053BF (1/2)
Q2 2SC2878-A
D16 S805-05CP
IC3 MC14053BF (1/3)
Q3 2SA812
IC2 MC14053BF (2/2)
Q1 2SC2878-A
IC3 MC14053BF (2/3)
Q29 XN6534
Q30 2SA812
Q31 XN6501
Q33 XN6534
Q34 2SA812
Q35 XN6501
Q36 XN6401
Q4 2SC1623
Q28 2SC1623
IC4 MC14053BF (1/3)
IC4 MC14053BF (2/3)
Q8 2SA812
Q9 XN6501
Q10 2SA812
Q11 2SC1623
Q12 2SC1623
Q5 XN6501
Q6 2SC1623
IC4 MC14053BF (3/3)
Q7 2SA812
Q13 2SC1623
IC1 LM2903M (1/2)
IC1 LM2903M (2/2)
IC3 MC14053BF (3/3)
IC7 CX-518
Q37 2SC2878
Q17 2SC1623
IC6 μPC4558G2 (1/2)
IC6 μPC4558G2 (2/2)
Q15 2SA812
IC9 MC14053BF
Q21 2SK94
Q19 2SC1623
IC8 RC2043MD (1/2)
IC8 RC2043MD (2/2)
Q20 XN4608
Q18 2SC1623
IC10 RC4560M
Q22 XN6501
RV1:SIDE TONE
RV2:INCOM LEVEL

CA-327 (J, UC)
CA-327P (EK)


CA-15
CN-498
CN-527
SW-447
CN101
VTR/CCU/CMA
(MALE)
EXTERNAL VIEW
1 POWER +12V DC GND
2 POWER +12 DC IN
3 MIC (X) OUT (VTR) INCOM (X) OUT (CCU)
4 MIC (Y) OUT (VTR) INCOM (Y) OUT (CCU)
5 MIC (G) OUT (VTR) INCOM (G) OUT (CCU)
6 COMPOSITE VIDEO (X) OUT (VTR) COMPOSITE VIDEO (X) OUT (CCU)
7 COMPOSITE VIDEO (G) OUT (VTR) COMPOSITE VIDEO (G) OUT (CCU)
8 PB VIDEO (G) OUT (VTR) RETURN VIDEO (G) IN (CCU)
9 PB VIDEO (X) OUT (VTR) RETURN VIDEO (X) IN (CCU)
10 BATTERY ALARM IN (VTR) SERIAL DATA IN/OUT (CCU)
11 CHROMINANCE (X) OUT (VTR) R PR OUT (CCU)
12 REC/ALARM IN (VTR) G PR OUT (CCU)
13 VTR START/STOP OUT (VTR) REC TALLY IN (CCU)
14 AUDIO MONITOR IN (VTR) B PR OUT (CCU)
CN102
DC IN
(MALE)
EXTERNAL VIEW
BATT IN
SW 101
CN104
S VIDEO OUT
(FEMALE)
CN105
AUDIO OUT
CN103
MIC IN
(FEMALE)
JK1
INTERCOM
JK2
EAR
S1
VTR
VTR/START
RETURN VIDEO
IC2 MC14053BF
IC3 MC14053BF
IC4 MC14053BF
IC1 LM2903M
IC7 CX-518
IC6 μPC4558G2
IC8 RC2043MD
IC9 MC14053BF
IC10 RC4560M
CHROMA (X) OUT
CHROMA (G) OUT
AUDIO SEL (+8.5V) OUT
LUM (X) OUT
LUM (G) OUT
PB RET VIDEO (X) OUT
PB RET VIDEO (G) OUT
EAR PHONE (Y) OUT
EAR PHONE (X) OUT
GND
VF VIDEO CONT OUT
GEN LOCK VIDEO (G) OUT
GEN LOCK VIDEO (X) OUT
GND (CHASSIS)
REC TALLY IND OUT
AUDIO OUT (X)
AUDIO OUT (G)
MIC (X) OUT
MIC (Y) OUT
MIC (G) OUT
MIC (G) IN
MIC (X) IN
INT MIC (X) OUT
INT MIC (G) OUT
INT/EXT MIC IN
MIC GND
RECEIVE (X) OUT
INCOM GND
POWER +12 DC IN
12V CCQ/BATT OUT
12V CCQ/BATT IN
POWER +12V DC OUT
POWER +12V DC GND
VTR START/STOP OUT
MIC (INCOM) GND
INCOM GND
RECEIVE (X) IN
MIC/TALK OUT
MIN (INCOM) IN
EAR PHONE (X) IN
EAR PHONE (Y) IN
AUDIO SEL (+8.5V) IN
AUDIO SEL (X) OUT
YC/COMP OUT
RV1:SIDE TONE
RV2:INCOM LEVEL

FRAME WIRING
CA-15 BOARD
CN-498 BOARD
CN-527 BOARD
SW-447 BOARD

CA-327 (J, UC)
CA-327P (EK)

SECTION D
SPARE PARTS

PARTS INFORMATION

1. **Safety Related Component Warning**

   Components indentified by shading marked with ⚠ on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation. Replace these components with Sony parts whose parts numbers appear as shown in this manual or in service manual supplements published by Sony.

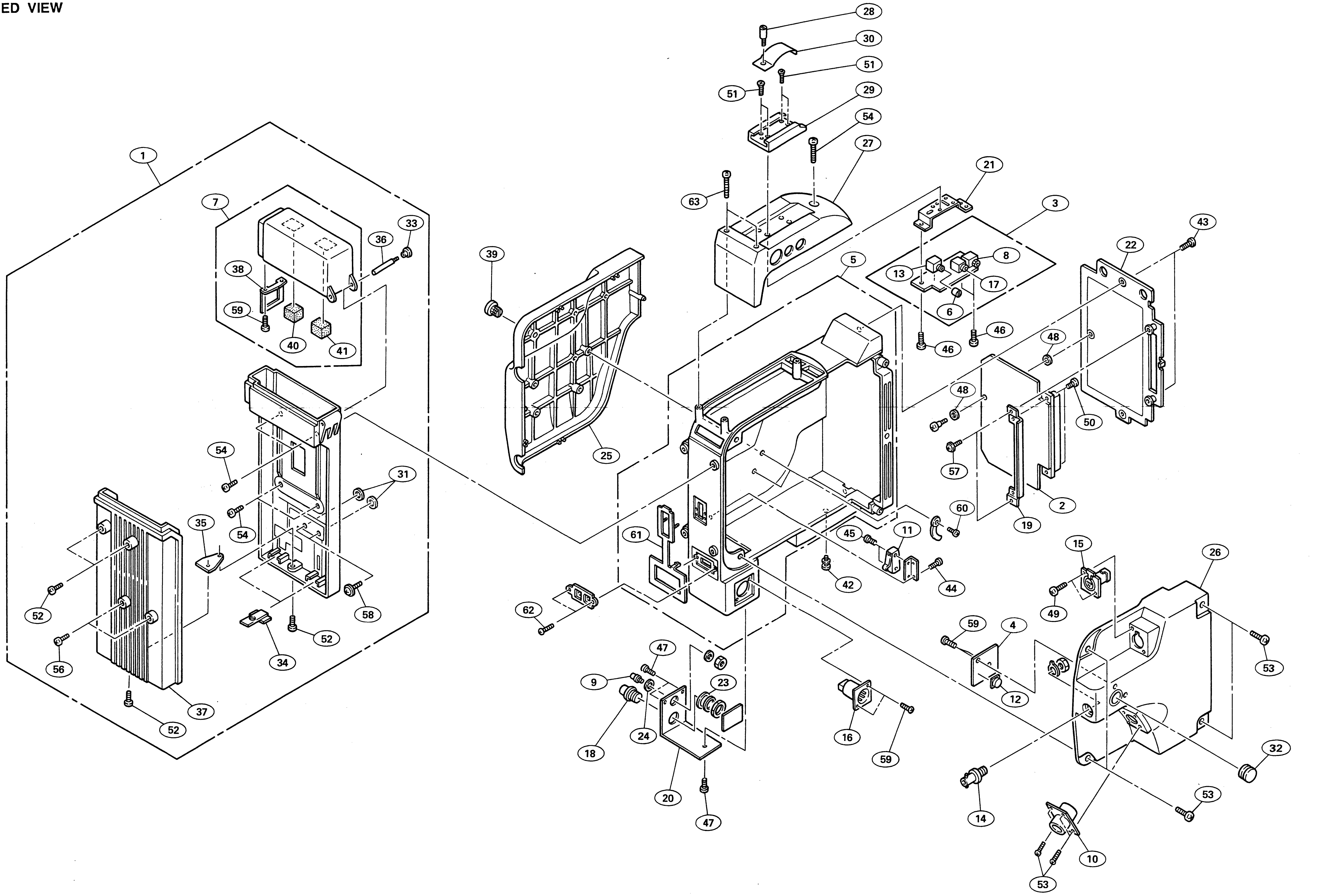
2. Replacement Parts supplied from Sony Parts Center will sometimes have different shape and outside view from the parts which actually in use. This is due to **"accommodating the improved parts and/or engineering changes" or "standardization of genuine parts."** This manual 's exploded view and electrical spare parts lists are indicating the parts numbers of "the standardized genuine parts at present." Regarding engineering parts and diagrams changes in our engineering department, refer to SONY service bulletins and service manual supplements.

3. The parts marked with "S" in the SP column of the exploded views and electrical spare parts list are normally required for routine service work. Orders for parts marked with "O" will be processed, but allow for additional delivery time.

4. Item with no parts number and/or no description are not stocked because they are seldom required for routine service.

5. All capacitors are in micro farads unless otherwise specified.
   All inductors are in micro henries unless otherwise specified.
   All resistors are in ohms.

EXPLODED VIEW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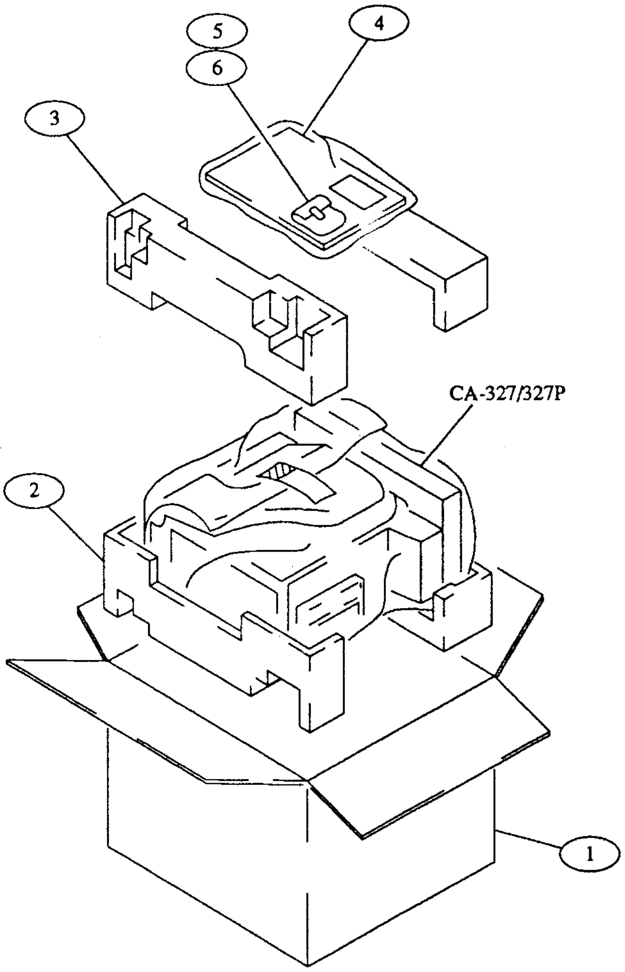
No.	Part No.	SP	Description
1	A-6703-651-C	s	CASE ASSY, BATTERY
2	A-7515-231-A	o	MOUNTED CIRCUIT BOARD, CA-15
3	A-7520-518-A	o	MOUNTED CIRCUIT BOARD, SW-447
4	A-7520-519-A	o	MOUNTED CIRCUIT BOARD, CN-498
5	X-3165-587-1	o	CHASSIS ASSY, CA
6	X-3664-208-0	s	KNOB ASSY, FADE
7	X-3717-701-3	o	COVER ASSY, TOP, BATTERY
8	1-507-883-11	s	JACK, SMALL TYPE, 4P "INTER COM"
9	1-507-918-00	o	JACK, PIN 1P "AUDIO OUT"
10	1-508-942-12	s	CONNECTOR, 14P MALE "VTR/CCU/CMA"
11	1-552-665-00	s	SWITCH, MICRO
12	1-553-739-21	s	SWITCH, KEY BOARD
13	1-554-955-11	s	SWITCH, ROTARY "VTR"
14	1-561-781-11	s	CONNECTOR, BNC "GENLOCK IN"
15	1-563-096-11	s	CONNECTOR (WITH SW), 3P FEMALE "MIC IN"
16	1-564-603-11	s	CONNECTOR (WITH DC SW), 4P MALE "DC IN"
17	1-566-740-11	s	JACK "EAR"
18	1-568-699-11	s	SOCKET, MINIATURE 4P "S VIDEO OUT"
19	3-166-318-01	o	BRACKET, CONNECTOR
20	3-166-319-01	o	PLATE (A), BOTTOM
21	3-166-329-01	o	BRACKET, PC BOARD
22	3-166-330-01	o	PANEL, CONNECTOR
23	3-167-448-01	o	PLATE, GROUND
24	3-167-449-01	o	INSULATOR (1)
25	3-167-450-01	o	PAD, SIDE
26	3-168-373-01	o	COVER, SIDE
27	3-168-436-01	o	COVER, TOP
28	3-664-213-00	o	SCREW, STOPPER
29	3-664-218-00	o	SHOE
30	3-664-228-00	o	PLATE, SPRING
31	3-669-596-00	s	WASHER (2.3), STOPPER
32	3-672-221-02	s	PACKING, CONTROL
33	3-703-075-00	s	CAP 2, SHAFT
34	3-717-707-02	o	CUSHION (2)
35	3-717-708-01	o	RETAINER, CASE
36	3-717-709-01	o	SHAFT, LID
37	3-718-040-01	o	COVER (1), BATTERY CASE
38	3-718-172-01	o	RETAINER, HOOK
39	3-725-907-01	s	BUSHING, BLIND
40	3-729-720-01	o	CUSHION (LEFT)
41	3-729-721-01	o	CUSHION (RIGHT)
42	3-744-355-01	o	SHAFT, GUIDE
43	7-621-770-67	s	SCREW +B 2.6X6
44	7-621-772-18	s	SCREW +B 2X4
45	7-621-772-48	s	SCREW +B 2X8
46	7-621-773-86	s	SCREW +B 2.6X4
47	7-621-775-10	s	SCREW +B 2.6X4
48	7-623-925-11	s	WASHER 4.0, NYLONE
49	7-627-556-77	s	SCREW, PRECISION +P2.6X6 TYPE 1
50	7-628-254-20	s	SCREW +PS 2.6X8
51	7-682-248-04	s	SCREW +K 3X8
52	7-682-546-09	s	SCREW +B 3X5
53	7-682-548-04	s	SCREW +B 3X8
54	7-682-548-09	s	SCREW +B 3X8
55	7-682-553-09	s	SCREW +B 3X20
56	7-682-559-09	s	SCREW +B 4X5
57	7-682-947-01	s	SCREW +PSW 3X6
58	7-682-948-01	s	SCREW +PSW 3X8
59	7-685-133-19	s	SCREW +P 2.6X6 TYPE1
60	7-685-649-79	s	SCREW +BTP 3X14 TYPE2 N-S
61	3-168-435-01	o	PACKING, DROP PROTECTION
62	7-621-772-30	s	SCREW +B 2X6
63	7-682-553-09	s	SCREW +B 3X12

No.	Part No.	SP	DESCRIPTION
1	3-167-618-01	o	CARTON, INDIVIDUAL(UC)
	3-167-620-01	o	CARTON, INDIVIDUAL(EK)1
2	3-167-622-01	o	CUSHION(LOWER)
3	3-167-623-01	o	CUSHION(UPPER)
4	3-752-392-11	s	MANUAL, INSTRUCTION
5	7-682-560-09	s	SCREW +B4x6
6	7-682-563-09	s	SCREW +B4x12



RESISTOR, CHIP

Part No.	SP	Description
1-216-295-00	s	RES, CHIP 0 5% 1/10W
1-216-298-00	s	RES, CHIP 2.2 5% 1/10W
1-216-302-00	s	RES, CHIP 2.7 5% 1/10W
1-216-304-11	s	RES, CHIP 3.3 5% 1/10W
1-216-306-11	s	RES, CHIP 3.9 5% 1/10W
1-216-308-00	s	RES, CHIP 4.7 5% 1/10W
1-216-309-00	s	RES, CHIP 5.6 5% 1/10W
1-216-311-00	s	RES, CHIP 6.8 5% 1/10W
1-216-313-00	s	RES, CHIP 8.2 5% 1/10W
1-216-001-00	s	RES, CHIP 10 5% 1/10W
1-216-003-11	s	RES, CHIP 12 5% 1/10W
1-216-005-00	s	RES, CHIP 15 5% 1/10W
1-216-007-00	s	RES, CHIP 18 5% 1/10W
1-216-009-00	s	RES, CHIP 22 5% 1/10W
1-216-011-00	s	RES, CHIP 27 5% 1/10W
1-216-013-00	s	RES, CHIP 33 5% 1/10W
1-216-015-00	s	RES, CHIP 39 5% 1/10W
1-216-017-00	s	RES, CHIP 47 5% 1/10W
1-216-019-00	s	RES, CHIP 56 5% 1/10W
1-216-021-00	s	RES, CHIP 68 5% 1/10W
1-216-023-00	s	RES, CHIP 82 5% 1/10W
1-216-025-00	s	RES, CHIP 100 5% 1/10W
1-216-027-00	s	RES, CHIP 120 5% 1/10W
1-216-029-00	s	RES, CHIP 150 5% 1/10W
1-216-031-00	s	RES, CHIP 180 5% 1/10W
1-216-033-00	s	RES, CHIP 220 5% 1/10W
1-216-035-00	s	RES, CHIP 270 5% 1/10W
1-216-037-00	s	RES, CHIP 330 5% 1/10W
1-216-039-00	s	RES, CHIP 390 5% 1/10W
1-216-041-00	s	RES, CHIP 470 5% 1/10W
1-216-043-00	s	RES, CHIP 560 5% 1/10W
1-216-045-00	s	RES, CHIP 680 5% 1/10W
1-216-047-00	s	RES, CHIP 820 5% 1/10W
1-216-049-00	s	RES, CHIP 1k 5% 1/10W
1-216-051-00	s	RES, CHIP 1.2k 5% 1/10W
1-216-053-00	s	RES, CHIP 1.5k 5% 1/10W
1-216-055-00	s	RES, CHIP 1.8k 5% 1/10W
1-216-057-00	s	RES, CHIP 2.2k 5% 1/10W
1-216-059-00	s	RES, CHIP 2.7k 5% 1/10W
1-216-061-00	s	RES, CHIP 3.3k 5% 1/10W
1-216-063-00	s	RES, CHIP 3.9k 5% 1/10W
1-216-065-00	s	RES, CHIP 4.7k 5% 1/10W
1-216-067-00	s	RES, CHIP 5.6k 5% 1/10W
1-216-069-00	s	RES, CHIP 6.8k 5% 1/10W
1-216-071-00	s	RES, CHIP 8.2k 5% 1/10W
1-216-073-00	s	RES, CHIP 10k 5% 1/10W
1-216-075-00	s	RES, CHIP 12k 5% 1/10W
1-216-077-00	s	RES, CHIP 15k 5% 1/10W
1-216-079-00	s	RES, CHIP 18k 5% 1/10W
1-216-081-00	s	RES, CHIP 22k 5% 1/10W
1-216-083-00	s	RES, CHIP 27k 5% 1/10W
1-216-085-00	s	RES, CHIP 33k 5% 1/10W
1-216-748-11	s	RES, CHIP 39k 5% 1/10W
1-216-089-00	s	RES, CHIP 47k 5% 1/10W
1-216-091-00	s	RES, CHIP 56k 5% 1/10W

RESISTOR, CHIP

Part No.	SP	Description
1-216-093-00	s	RES, CHIP 68k 5% 1/10W
1-216-095-00	s	RES, CHIP 82k 5% 1/10W
1-216-097-00	s	RES, CHIP 100k 5% 1/10W
1-216-099-00	s	RES, CHIP 120k 5% 1/10W
1-216-101-00	s	RES, CHIP 150k 5% 1/10W
1-216-103-00	s	RES, CHIP 180k 5% 1/10W
1-216-105-00	s	RES, CHIP 220k 5% 1/10W
1-216-107-00	s	RES, CHIP 270k 5% 1/10W
1-216-109-00	s	RES, CHIP 330k 5% 1/10W
1-216-111-00	s	RES, CHIP 390k 5% 1/10W
1-216-113-00	s	RES, CHIP 470k 5% 1/10W
1-216-115-00	s	RES, CHIP 560k 5% 1/10W
1-216-117-00	s	RES, CHIP 680k 5% 1/10W
1-216-119-00	s	RES, CHIP 820k 5% 1/10W
1-216-121-00	s	RES, CHIP 1.0M 5% 1/10W
1-216-123-11	s	RES, CHIP 1.2M 5% 1/10W
1-216-125-00	s	RES, CHIP 1.5M 5% 1/10W
1-216-127-11	s	RES, CHIP 1.8M 5% 1/10W
1-216-129-00	s	RES, CHIP 2.2M 5% 1/10W
1-216-131-11	s	RES, CHIP 2.7M 5% 1/10W
1-216-133-00	s	RES, CHIP 3.3M 5% 1/10W

CA-15 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7515-231-A	o	MOUNTED CIRCUIT BOARD "CA-15"
C1	1-131-377-00	s	TANTALUM 10uF 10% 10V
C2	1-124-472-11	s	ELECT 470uF 20% 10V
C3	1-126-176-11	s	ELECT 220uF 20% 10V
C4	1-163-227-11	s	CERAMIC 10PF 5% 50V
C5	1-124-584-00	s	ELECT 100uF 20% 10V
C6	1-124-589-11	s	ELECT 47uF 20% 10V
C7	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C8	1-124-638-11	s	ELECT 22uF 20% 6.3V
C9	1-124-589-11	s	ELECT 47uF 20% 10V
C10	1-163-227-11	s	CERAMIC 10PF 5% 50V
C11	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C12	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C13	1-124-584-00	s	ELECT 100uF 20% 10V
C14	1-163-038-00	s	CERAMIC CHIP 0.1uF 25V
C15	1-131-365-00	s	TANTALUM 10uF 10% 16V
C16	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C17	1-131-365-00	s	TANTALUM 10uF 10% 16V
C18	1-131-377-00	s	TANTALUM 10uF 10% 10V
C19	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C20	1-131-347-00	s	TANTALUM 1uF 10% 35V
C21	1-126-301-11	s	ELECT 1uF 20% 50V
C22	1-124-463-00	s	ELECT 0.1uF 20% 50V
C23	1-126-301-11	s	ELECT 1uF 20% 50V
C24	1-163-038-00	s	CERAMIC CHIP 0.1uF 25V
C25	1-124-584-00	s	ELECT 100uF 20% 10V
C26	1-124-893-11	s	ELECT 2200uF 20% 6.3V
C27	1-126-176-11	s	ELECT 220uF 20% 10V
C28	1-163-036-00	s	CERAMIC CHIP 0.068uF 50V
C29	1-126-157-11	s	ELECT 10uF 20% 16V
C30	1-124-472-11	s	ELECT 470uF 20% 10V
C31	1-126-154-11	s	ELECT 47uF 20% 6.3V
C32	1-163-251-11	s	CERAMIC 100PF 5% 50V
C33	1-126-157-11	s	ELECT 10uF 20% 16V
C34	1-163-251-11	s	CERAMIC 100PF 5% 50V
C35	1-124-584-00	s	ELECT 100uF 20% 10V
C36	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C37	1-124-584-00	s	ELECT 100uF 20% 10V
C38	1-124-584-00	s	ELECT 100uF 20% 10V
C39	1-126-176-11	s	ELECT 220uF 20% 10V
C40	1-131-365-00	s	TANTALUM 10uF 10% 16V
C41	1-163-086-00	s	CERAMIC CHIP 3PF 0.25PF 50V
C42	1-163-088-00	s	CERAMIC CHIP 5PF 0.25PF 50V
C43	1-124-584-00	s	ELECT 100uF 20% 10V
C44	1-124-584-00	s	ELECT 100uF 20% 10V
C45	1-126-176-11	s	ELECT 220uF 20% 10V
C46	1-126-176-11	s	ELECT 220uF 20% 10V
C47	1-126-176-11	s	ELECT 220uF 20% 10V
C48	1-126-176-11	s	ELECT 220uF 20% 10V
C49	1-163-086-00	s	CERAMIC CHIP 3PF 0.25PF 50V
C50	1-163-088-00	s	CERAMIC CHIP 5PF 0.25PF 50V
C51	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C52	1-164-232-11	s	CERAMIC CHIP 0.01uF 20% 100V
C53	1-163-086-00	s	CERAMIC CHIP 3PF 0.25PF 50V
C54	1-163-088-00	s	CERAMIC CHIP 5PF 0.25PF 50V
C55	1-124-584-00	s	ELECT 100uF 20% 10V
C56	1-124-584-00	s	ELECT 100uF 20% 10V
C57	1-126-157-11	s	ELECT 10uF 20% 16V

(CA-15 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C58	1-126-157-11	s	ELECT 10uF 20% 16V
C59	1-163-235-11	s	CERAMIC 22PF 5% 50V
CN1	1-566-581-11	o	CONNECTOR,MULTI 50P
CN2	1-506-477-11	o	CONNECTOR, 12P, MALE
	1-569-205-11	o	PLUG HOUSING, 12P
	1-569-191-11	o	TERMINAL, SOLDERLESS
	1-569-193-11	o	CONTACT
CN3	1-506-471-11	o	CONNECTOR, 6P, MALE
CN4	1-506-470-11	o	CONNECTOR, 5P, MALE
CN5	1-506-469-11	o	CONNECTOR, 4P, MALE
	1-569-197-11	o	PLUG HOUSING, 4P
	1-569-191-11	o	TERMINAL, SOLDERLESS
	1-569-193-11	o	CONTACT
CN6	1-560-356-00	o	CONNECTOR POST HEADER, ILG (2P)
CN7	1-506-467-11	o	CONNECTOR, 2P, MALE
	1-569-195-11	s	HOUSING, CONNECTOR 2P
	1-569-191-11	o	TERMINAL, SOLDERLESS
	1-569-193-11	o	CONTACT
CN8	1-506-469-11	o	CONNECTOR, 4P, MALE
CN9	1-564-467-11	o	CONNECTOR, 2P, MALE
	1-569-195-11	s	HOUSING, CONNECTOR 2P
	1-569-191-11	o	TERMINAL, SOLDERLESS
	1-569-193-11	o	CONTACT
CN10	1-506-467-11	o	CONNECTOR, 2P, MALE
D2	8-719-104-31	s	DIODE 1S2838
D3	8-719-104-34	s	DIODE 1S2836
D4	8-719-104-31	s	DIODE 1S2838
D5	8-719-104-31	s	DIODE 1S2838
D6	8-719-106-16	s	DIODE RD6.8M-B1
D7	8-719-104-34	s	DIODE 1S2836
D8	8-719-105-32	s	DIODE RD2.7M-B2
D9	8-719-800-76	s	DIODE 1SS226
D10	8-719-800-76	s	DIODE 1SS226
D11	8-719-104-34	s	DIODE 1S2836
D12	8-719-106-70	s	DIODE RD12M-B1
D13	8-719-105-63	s	DIODE RD4.3M-B1
D14	8-719-800-76	s	DIODE 1SS226
D15	8-719-104-31	s	DIODE 1S2838
D16	8-719-938-75	s	SB05-05CP
D17	8-719-104-31	s	DIODE 1S2838
D18	8-719-104-31	s	DIODE 1S2838
IC1	8-759-981-65	s	IC LM2903M
IC2	8-759-300-71	s	IC MC14053BF
IC3	8-759-300-71	s	IC MC14053BF
IC4	8-759-300-71	s	IC MC14053BF
IC5	8-759-300-71	s	IC MC14053BF
IC6	8-759-100-96	s	IC UPC4558G2
IC7	8-759-605-18	s	IC CX518
IC8	8-759-981-58	s	IC RC2043MD
IC9	8-759-300-71	s	IC MC14053BF
IC10	8-759-981-99	s	IC RC4560M
L1	1-408-413-00	s	MICRO 22uH
L2	1-408-413-00	s	MICRO 22uH
L3	1-410-478-11	s	47uH
L4	1-410-478-11	s	47uH
L6	1-410-478-11	s	47uH

(CA-15 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
L7	1-408-413-00	s	MICRO 22uH
L8	1-408-413-00	s	MICRO 22uH
Q1	8-729-201-05	s	TRANSISTER 2SC2878-B
Q2	8-729-201-05	s	TRANSISTER 2SC2878-B
Q3	8-729-216-22	s	TRANSISTOR 2SA1162
Q4	8-729-100-66	s	TRANSISTOR 2SC1623
Q5	8-729-402-19	s	TRANSISTOR XN6501
Q6	8-729-100-66	s	TRANSISTOR 2SC1623
Q7	8-729-216-22	s	TRANSISTOR 2SA1162
Q8	8-729-216-22	s	TRANSISTOR 2SA1162
Q9	8-729-402-19	s	TRANSISTOR XN6501
Q10	8-729-216-22	s	TRANSISTOR 2SA1162
Q11	8-729-100-66	s	TRANSISTOR 2SC1623
Q12	8-729-100-66	s	TRANSISTOR 2SC1623
Q13	8-729-100-66	s	TRANSISTOR 2SC1623
Q14	8-729-100-66	s	TRANSISTOR 2SC1623
Q15	8-729-216-22	s	TRANSISTOR 2SA1162
Q16	8-729-100-66	s	TRANSISTOR 2SC1623
Q17	8-729-100-66	s	TRANSISTOR 2SC1623
Q18	8-729-100-66	s	TRANSISTOR 2SC1623
Q19	8-729-100-66	s	TRANSISTOR 2SC1623
Q20	8-729-402-84	s	TRANSISTER XN4601
Q21	8-729-109-41	s	TRANSISTOR 2SK94-X1
Q22	8-729-402-19	s	TRANSISTOR XN6501
Q23	8-729-402-84	s	TRANSISTER XN4601
Q24	8-729-403-32	s	TRANSISTOR XN6534
Q25	8-729-216-22	s	TRANSISTOR 2SA1162
Q26	8-729-402-19	s	TRANSISTOR XN6501
Q27	8-729-402-78	s	TRANSISTOR XN6401
Q28	8-729-100-66	s	TRANSISTOR 2SC1623
Q29	8-729-403-32	s	TRANSISTOR XN6534
Q30	8-729-216-22	s	TRANSISTOR 2SA1162
Q31	8-729-402-19	s	TRANSISTOR XN6501
Q32	8-729-402-78	s	TRANSISTOR XN6401
Q33	8-729-403-32	s	TRANSISTOR XN6534
Q34	8-729-216-22	s	TRANSISTOR 2SA1162
Q35	8-729-402-19	s	TRANSISTOR XN6501
Q36	8-729-402-78	s	TRANSISTOR XN6401
Q37	8-729-201-05	s	TRANSISTER 2SC2878-B
R1	1-249-399-11	s	CARBON 33 5% 1/4W
R8	1-215-393-00	s	METAL 68 1% 1/6W
R9	1-215-393-00	s	METAL 68 1% 1/6W
R22	1-215-394-00	s	METAL 75 1% 1/6W
R42	1-215-393-00	s	METAL 68 1% 1/6W
R54	1-215-394-00	s	METAL 75 1% 1/6W
R91	1-215-431-00	s	METAL 2.7K 1% 1/6W
R95	1-216-667-11	s	METAL CHIP 4.7K 0.50% 1/10W
R103	1-215-394-00	s	METAL 75 1% 1/6W
R104	1-216-667-11	s	METAL CHIP 4.7K 0.50% 1/10W
R119	1-216-667-11	s	METAL CHIP 4.7K 0.50% 1/10W
R120	1-216-667-11	s	METAL CHIP 4.7K 0.50% 1/10W
R127	1-215-394-00	s	METAL 75 1% 1/6W
R131	1-216-667-11	s	METAL CHIP 4.7K 0.50% 1/10W
R132	1-216-667-11	s	METAL CHIP 4.7K 0.50% 1/10W
R139	1-215-394-00	s	METAL 75 1% 1/6W
RV1	1-226-703-11	s	RES, ADJ, METAL 10K
RV2	1-226-775-11	s	RES, ADJ, METAL 100K

(CA-15 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
T1	1-427-270-XX	s	TRANSFORMER,OUTPUT
T2	1-427-487-00	s	TRANSFORMER, OUTPUT

CN-498 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7520-519-A	o	MOUNTED CIRCUIT BOARD "CN-498"
CN1	1-506-702-11	o	CONNECTOR, ILG 3P,
	1-561-515-00	o	HOUSING, ILG 3P FEMALE
	1-560-372-00	o	CONTACT, AWG22-28
CN2	1-506-702-11	o	CONNECTOR, ILG 3P,
	1-561-515-00	o	HOUSING, ILG 3P FEMALE
	1-560-372-00	o	CONTACT, AWG22-28
CN3	1-560-356-00	o	CONNECTOR POST HEADER, ILG (2P) MAL
	1-561-514-00	o	HOUSING, ILG 2P FEMALE
	1-560-372-00	o	CONTACT, AWG22-28
CN6	1-561-514-00	o	HOUSING, ILG 2P FEMALE
	1-560-372-00	o	CONTACT, AWG22-28
CN10	1-569-195-11	s	HOUSING, CONNECTOR 2P
	1-562-735-11	o	HOUSING, 2P
	1-564-831-11	o	CONTACT
	1-569-193-11	o	CONTACT
S1	1-553-739-21	s	SWITCH, PUSH

CN-527 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-636-740-12	o	PRINTED CIRCUIT BOARD "CN-527"
CN8	1-569-197-11	o	HOUSING, CONNECTER 4P
	1-569-191-11	o	CONTACT
	1-569-193-11	o	CONTACT

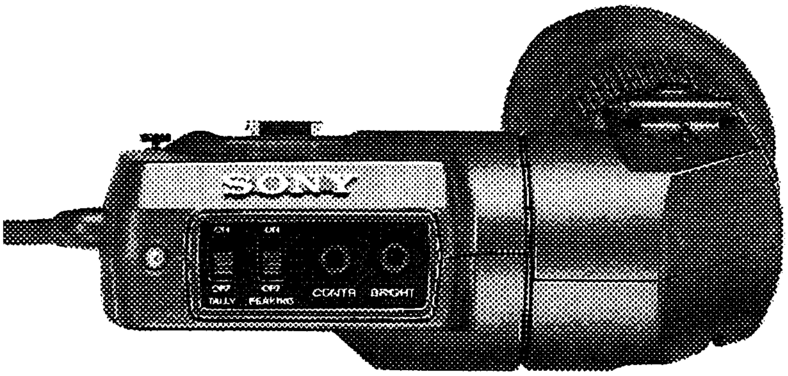
SW-447 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-7520-518-A	o	MOUNTED CIRCUIT BOARD "SW-447"
C1	1-161-051-00	s	CERAMIC 0.01uF 10% 25V
C2	1-161-051-00	s	CERAMIC 0.01uF 10% 25V
C3	1-161-051-00	s	CERAMIC 0.01uF 10% 25V
C4	1-161-051-00	s	CERAMIC 0.01uF 10% 25V
CN3	1-569-199-11	o	PLUG HOUSING, 6P
	1-562-739-11	o	HOUSING, CONNECTOR 6P
	1-564-831-11	o	CONTACT
	1-569-193-11	o	CONTACT
CN4	1-569-198-11	o	PLUG HOUSING, 5P
	1-562-738-11	o	HOUSING, 5P
	1-564-831-11	o	CONTACT
	1-569-191-11	o	TERMINAL, SOLDERLESS
	1-569-193-11	o	CONTACT
JK1	1-507-883-00	s	JACK, SMALL TYPE 4P
JK2	1-566-740-11	s	JACK
S1	1-554-955-11	s	SWITCH, ROTARY "VTR"

FRAME

Ref. No. or Q'ty	Part No.	SP	Description
C1001	1-161-051-00	s	CERAMIC 0.01uF 10% 25V
C1002	1-161-051-00	s	CERAMIC 0.01uF 10% 25V
CN101	1-508-942-00	s	RECEPTACLE, 14P MAIL "VTR/CCU/CMA"
CN102	1-564-603-11	s	CONNECTOR WITH DC SW, 4P, MALE
CN103	1-563-096-11	s	RECEPTACLE, 3P FEMAIL(WITH SW) "MIC IN"
CN104	1-568-699-11	s	SOCKET, MINIATURE(ROUND) 4P "S VIDEO OUT"
CN105	1-507-918-00	o	JACK, 1P "AUDIO OUT"
CN106	1-561-781-11	s	CONNECTOR, BNC, FEMALE
R1001	1-247-826-00	s	CARBON 620 5% 1/4W
SW101	1-552-665-00	s	SWITCH, MICRO

1.5INCH ELECTRONIC VIEWFINDER



SPECIFICATIONS

Picture tube	1.5-inch monochrome
Indicators	REC/TALLY indicator BATT indicator SHUTTER indicator GAIN UP indicator
Resolution	400 lines
Power requirements	12 V DC
Power consumption	2.3 W
Weight	Approx. 500 g (1 lb 2 oz)
Dimensions	Approx. 182 × 68 × 205 mm (w/h/d)
Supplied accessory	Operating Instructions (1)

Design and specifications are subject to change without notice.

SONY®

SERVICE MANUAL

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B. SEMICONDUCTOR

Semiconductor B-1

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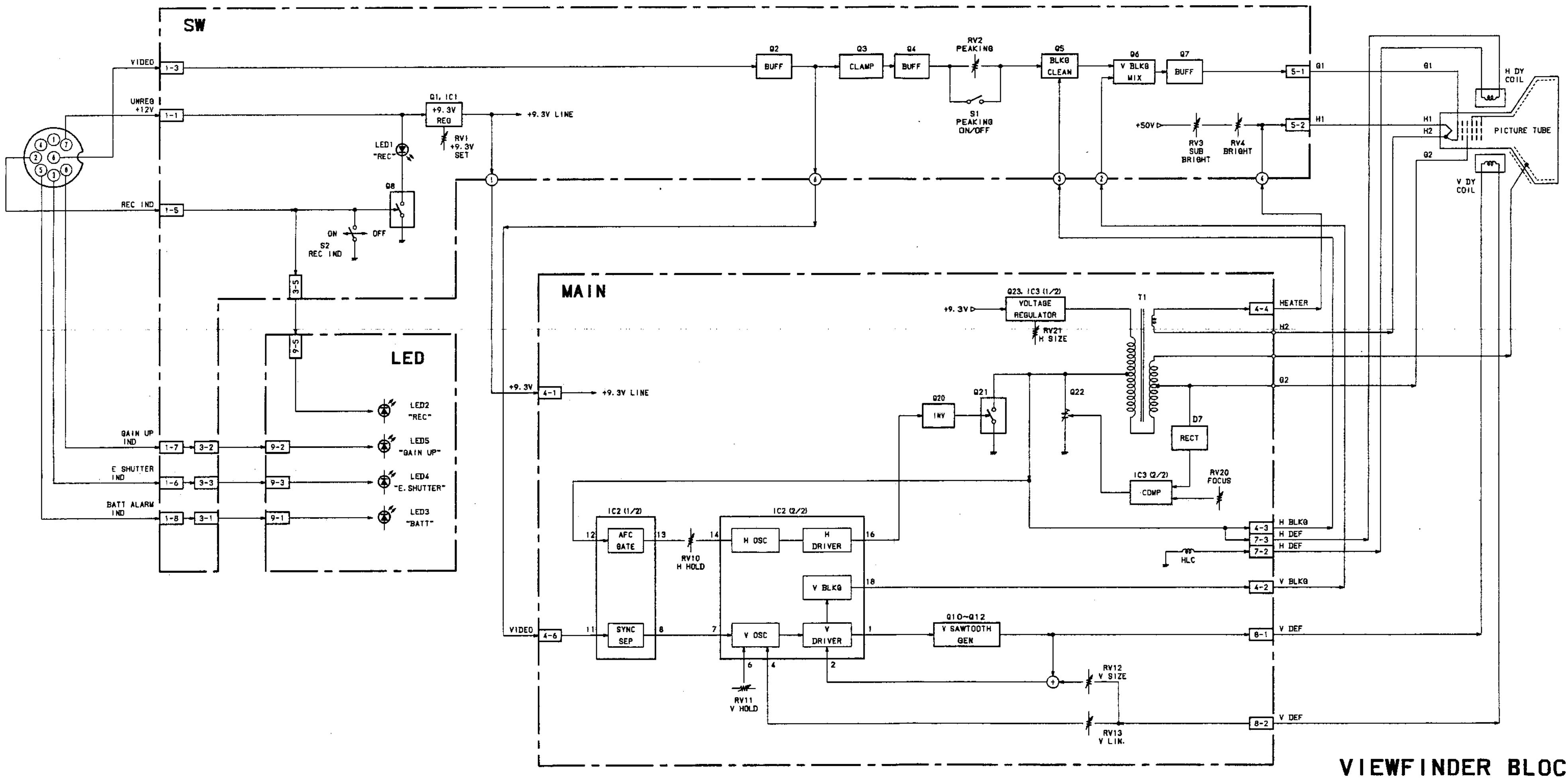
D. SPARE PARTS

D-1. Parts Information D-1
D-2. Exploded View...D-3
D-3. Electrical Parts List...D-5

SECTION A
BLOCK DIAGRAM


SW
VIDEO
1-3
UNREG +12V
1-1
REC IND
1-5
Q1, IC1
+9.3V REG
+9.3V LINE
RV1 +9.3V SET
LED1 "REC"
Q8
ON OFF
S2 REC IND
3-5
9-5
LED
LED2 "REC"
GAIN UP IND
1-7
3-2
9-2
LED5 "GAIN UP"
E SHUTTER IND
1-6
3-3
9-3
LED4 "E.SHUTTER"
BATT ALARM IND
1-8
3-1
9-1
LED3 "BATT"
Q2 BUFF
Q3 CLAMP
Q4 BUFF
RV2 PEAKING
S1 PEAKING ON/OFF
Q5 BLKG CLEAN
Q6 V BLKG MIX
Q7 BUFF
5-1
G1
+50V
RV3 SUB BRIGHT
RV4 BRIGHT
5-2
H1
H2
G2
H DY COIL
PICTURE TUBE
V DY COIL
MAIN
+9.3V
4-1
+9.3V LINE
Q23, IC3 (1/2)
VOLTAGE REGULATOR
RV21 H SIZE
T1
4-4
HEATER
Q20 INV
Q21
Q22
D7 RECT
IC3 (2/2) COMP
RV20 FOCUS
IC2 (1/2)
AFC GATE
SYNC SEP
RV10 H HOLD
IC2 (2/2)
H OSC
H DRIVER
V BLKG
V OSC
V DRIVER
RV11 V HOLD
12
13
14
16
18
11
8
7
6
4
2
1
4-3 H BLKG
7-3 H DEF
7-2 H DEF
HLC
4-2 V BLKG
Q10~Q12 V SAWTOOTH GEN
8-1 V DEF
RV12 V SIZE
RV13 V LIN.
8-2 V DEF
VIDEO
4-6
1
2
3
4
6

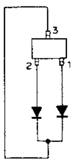
VIEWFINDER BLOCK

SECTION B
SEMICONDUCTOR PIN ASSIGNMENTS

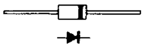
The circuit diagram of IC is obtained from the IC data book published by the manufacturer.

< DIODE >

TOP VIEW (SCALE 4/1)

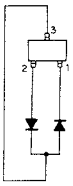


1S2837
DAN202K

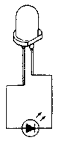


1SS133
1SS136
ERA15-06
ERA22-08

TOP VIEW (SCALE 4/1)



DA204K



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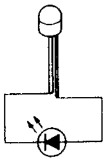
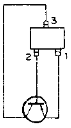


TLO102A
TLR109A

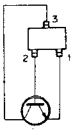
<TRANSISTOR >

TOP VIEW (SCALE 4/1)

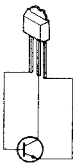


2SA812
2SB624

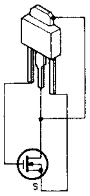
TOP VIEW (SCALE 4/1)



2SC2812
2SC2814
2SC3722K



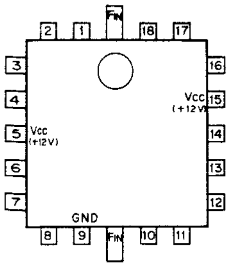
2SD1220

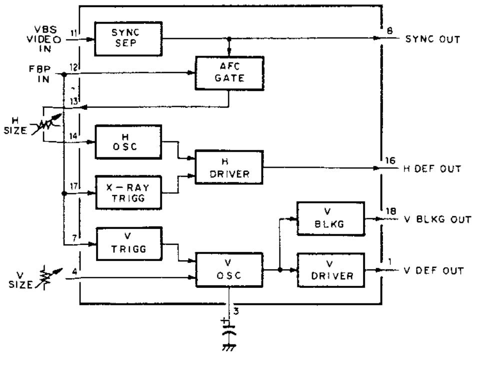


2SK612

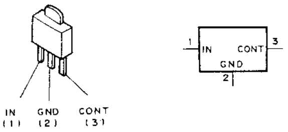
< IC >

HA11423MP (HITACHI) FLAT PACKAGE
TV H／V SYNC SIGNAL PROCESSOR
– TOP VIEW –

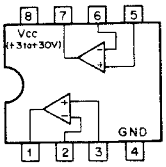

2
1
FIN
18
17
3
4
5
6
7
16
15
14
13
12
Vcc (+12V)
Vcc (+12V)
GND
8
9
FIN
10
11


VBS VIDEO IN
11
SYNC SEP
8
SYNC OUT
FBP IN
12
AFC GATE
13
H SIZE
14
H OSC
H DRIVER
16
H DEF OUT
17
X-RAY TRIGG
V BLKG
18
V BLKG OUT
7
V TRIGG
V SIZE
4
V OSC
V DRIVER
1
V DEF OUT
3

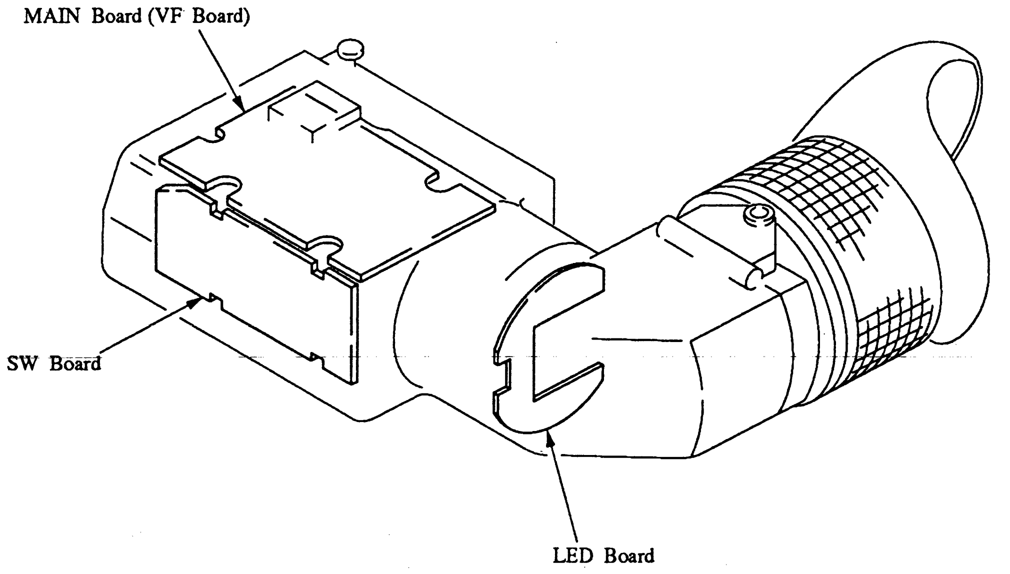
M5236ML (MITSUBISI)
ADJUSTABLE VOLTAGE REGULATOR


IN (1)
GND (2)
CONT (3)
1
IN
CONT
3
GND
2

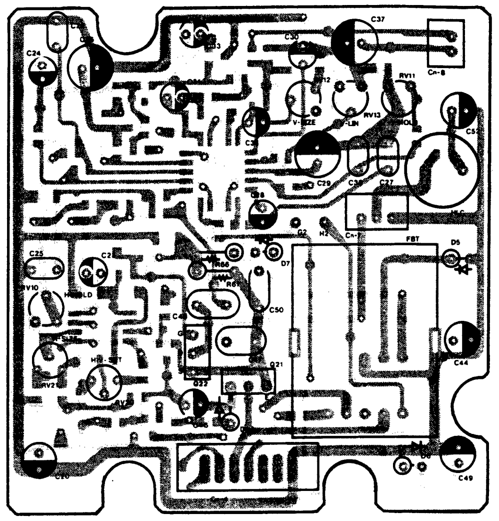
uPC358G2 (NEC) FLAT PACKAGE
DUAL OPERATIONAL AMPLIFIERS
– TOP VIEW –

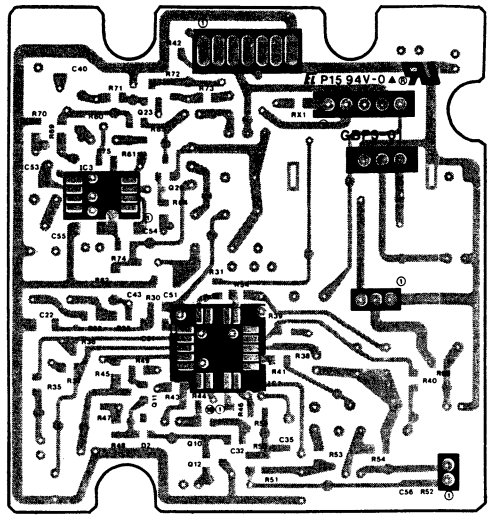

8
7
6
5
Vcc (+3to+30V)
GND
1
2
3
4

SECTION C
SCHEMATIC DIAGRAMS AND BOARD ILLUSTRATIONS

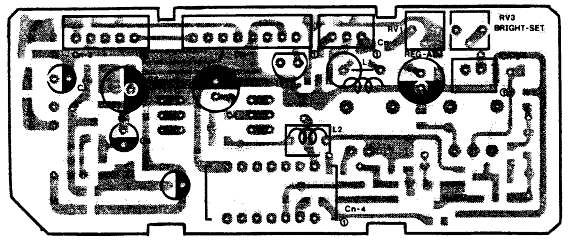

MAIN Board (VF Board)
SW Board
LED Board

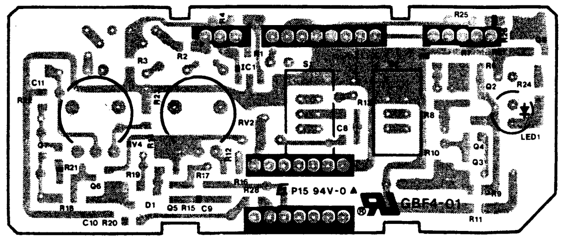
MAIN BOARD


COMPONENT SIDE

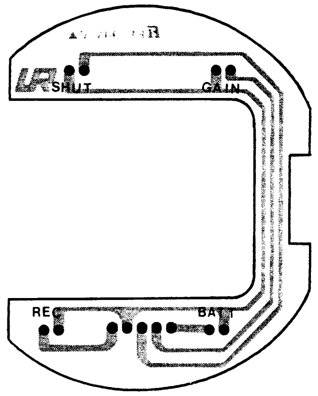

SOLDERING SIDE

SW BOARD


COMPONENT SIDE


SOLDERING SIDE

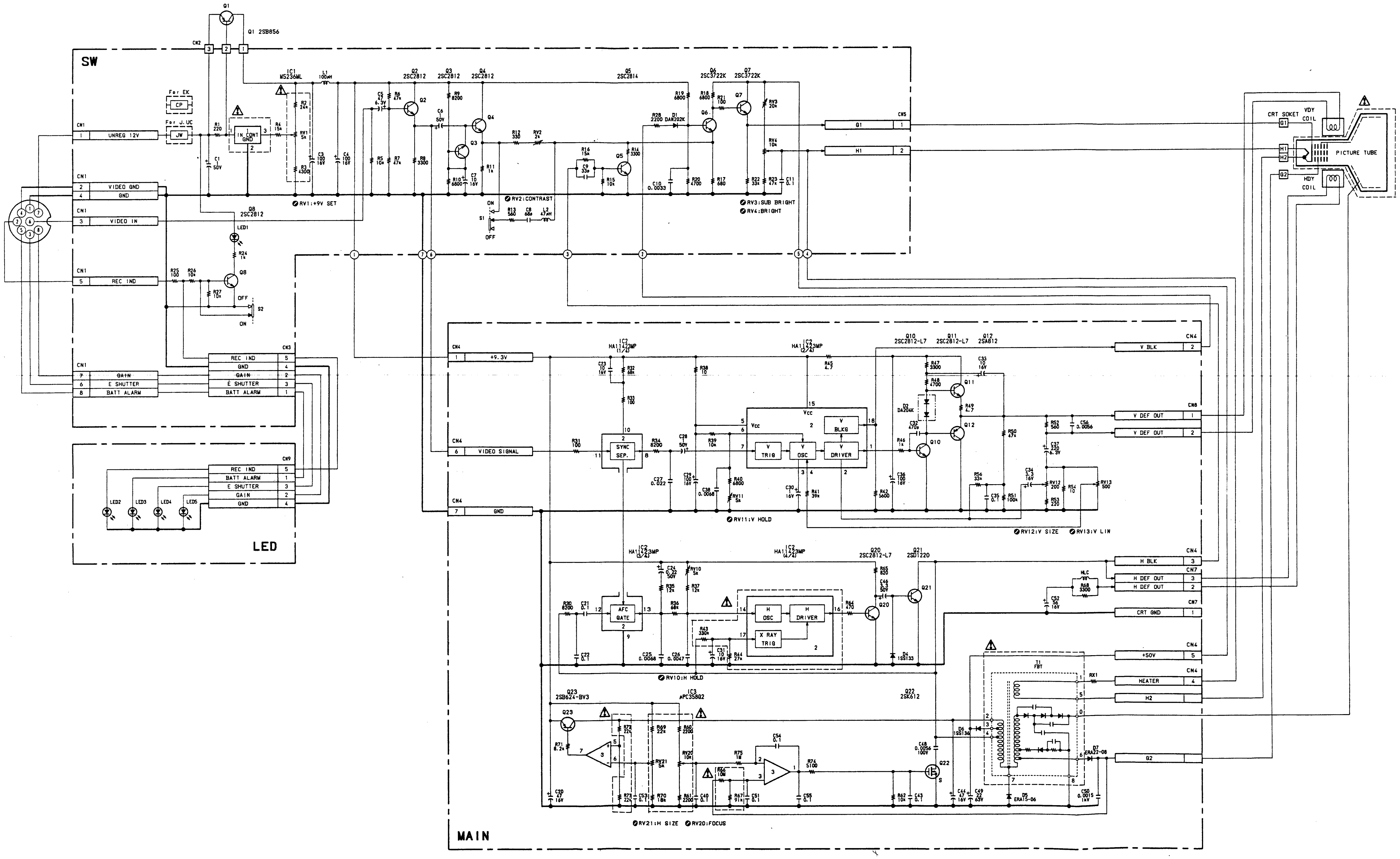
LED BOARD



COMPONENT SIDE

MAIN.SW LED FRAME FRAME MAIN.SW LED

FRAME



SW
Q1 2SB856
CN2
IC1 M5236ML
L1 100μH
Q2 2SC2812
Q3 2SC2812
Q4 2SC2812
Q5 2SC2814
Q6 2SC3722K
Q7 2SC3722K
For EK
CP
For J, UC
JW
IN CONT GND
CN1
UNREG 12V
VIDEO GND
GND
VIDEO IN
REC IND
GAIN
E SHUTTER
BATT ALARM
Q8 2SC2812
LED1
S1
ON
OFF
S2
RV1:+9V SET
RV2:CONTRAST
RV3:SUB BRIGHT
RV4:BRIGHT
D1 DAN202K
CN5
G1
H1
CN3
REC IND
GND
GAIN
E SHUTTER
BATT ALARM
CN9
LED2
LED3
LED4
LED5
LED
CRT SOKET
VDY COIL
PICTURE TUBE
HDY COIL
G1
H1
H2
G2
MAIN
CN4
+9.3V
VIDEO SIGNAL
GND
IC2 HA11423MP
SYNC SEP.
Vcc
V TRIG
V OSC
V BLKG
V DRIVER
Q10 2SC2812-L7
Q11 2SC2812-L7
Q12 2SA812
D2 DA204K
V BLK
CN8
V DEF OUT
V DEF OUT
RV11:V HOLD
RV12:V SIZE
RV13:V LIN
AFC GATE
H OSC
H DRIVER
X RAY TRIG
Q20 2SC2812-L7
Q21 2SD1220
D4 1SS133
RV10:H HOLD
H BLK
CN7
H DEF OUT
H DEF OUT
HLC
CRT GND
+50V
HEATER
H2
G2
Q23 2SB624-BV3
IC3 μPC358G2
Q22 2SK612
T1 FBT
RX1
D5 ERA15-06
D6 1SS136
D7 ERA22-08
RV21:H SIZE
RV20:FOCUS

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SECTION D
SPARE PARTS

PARTS INFORMATION

1. **Safety Related Component Warning**

   Components indentified by shading marked with ⚠ on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation. Replace these components with Sony parts whose parts numbers appear as shown in this manual or in service manual supplements published by Sony.

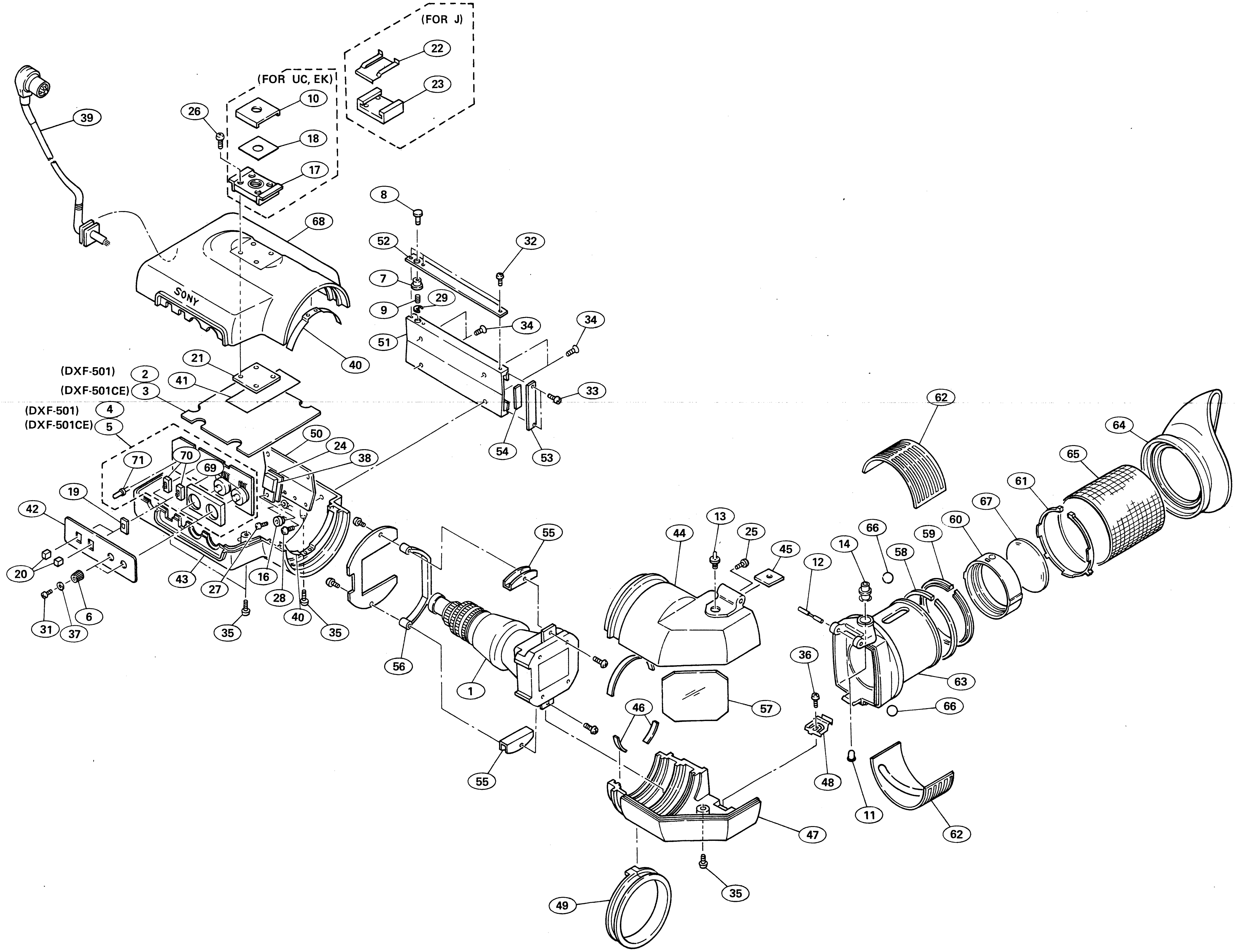
2. Replacement Parts supplied from Sony Parts Center will sometimes have different shape and outside view from the parts which actually in use. This is due to **"accommodating the improved parts and/or engineering changes"** or **"standardization of genuine parts."** This manual 's exploded view and electrical spare parts lists are indicating the parts numbers of "the standardized genuine parts at present." Regarding engineering parts and diagrams changes in our engineering department, refer to SONY service bulletins and service manual supplements.

3. The parts marked with "S" in the SP column of the exploded views and electrical spare parts list are normally required for routine service work. Orders for parts marked with "O" will be processed, but allow for additional delivery time.

4. Item with no parts number and/or no description are not stocked because they are seldom required for routine service.

5. All capacitors are in micro farads unless otherwise specified.
   All inductors are in micro henries unless otherwise specified.
   All resistors are in ohms.

EXPLODED VIEW


(FOR J)
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(FOR UC, EK)
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(DXF-501) 2
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(DXF-501CE) 3
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(DXF-501) 4
(DXF-501CE) 5
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No.		Part No.	SP	Description
1	⚠	1-546-078-11	s	CRT/DY ASSY
2		1-589-128-11	o	MAIN BOARD (for DXF-501)
3		1-589-128-21	o	MAIN BOARD (for DXF-501CE)
4		1-589-129-11	o	SW BOARD (for DXF-501)
5		1-589-129-21	o	SW BOARD (for DXF-501CE)
6		2-277-453-00	s	KNOB, CONTROL
7		2-277-456-00	s	COLLER, STOPPER
8		2-277-457-00	s	KNOB, STOPPER
9		2-277-466-01	s	SPRING, COMPRESSION
10		2-277-468-01	o	PLATE, ORNAMENTAL, CAMERA, SHOE
11		2-381-461-02	s	PIN, BLIND
12		2-381-462-01	s	PIN
13		2-381-468-01	s	PIN, STOPPER
14		2-381-472-02	o	STOPPER
16		2-832-007-00	s	BUSHING (K), INSULATING
17		3-657-700-00	s	BRACKET, ACCESSORY
18		3-672-213-01	o	SHEET, ADHESIVE
19		3-680-604-01	o	PLATE, BLIND
20		3-680-605-00	o	CAP, SLIDE
21		3-688-709-01	s	NUT, PLATE, SHOE
24		3-703-037-00	s	INSULATOR, TO-220
25		7-621-255-25	s	SCREW +P2X4
26		7-621-255-52	s	SCREW +P2X8
27		7-621-773-95	s	SCREW +B2.6X6
28		7-621-775-00	s	SCREW +B2.6X3
29		7-624-102-04	s	STOP RING, TYPE E
31		7-627-552-58	s	SCREW, PRECISION +P1.7X5
32		7-627-553-28	s	SCREW, PRECISION +P2X2.5
33		7-627-553-68	s	SCREW, PRECISION +P2X6
34		7-682-248-09	s	SCREW +K3X8
35		7-682-550-09	s	SCREW +B3X12
36		7-685-131-19	s	SCREW +BTP2.6X4
37		7-688-008-04	s	WASHER
38		8-729-385-82	s	TRANSISTOR 2SB858
39		9-994-797-01	s	CABLE, VF
40		9-994-811-01	o	SPRING, PLATE
41		9-994-812-01	o	INSULATOR
42		9-994-813-01	o	LABEL, SWITCH
43		9-994-814-01	o	CASE, BOTTOM
44		9-994-815-01	o	HOLDER T, OUTSIDE
45		9-994-816-01	o	PLATE, NUT
46		9-994-817-01	o	MOLT
47		9-994-818-01	o	HOLDER B, OUTSIDE
48		9-994-819-01	o	PIN, LOCK
49		9-994-820-01	o	RING, SLIDE
50		9-994-821-01	o	NUT, PLATE, CASE
51		9-994-822-01	o	GUIDE, VF SLIDE
52		9-994-823-01	o	LABEL, SLIDE
53		9-994-824-01	o	STOPPER
54		9-994-825-01	o	RUBBER, STOPPER
55		9-994-826-01	o	STOPPER, PWB
56		9-994-827-01	o	COLLER
57		9-997-916-01	o	MIRROR
58		9-997-917-01	o	SPACER
59		9-997-918-01	o	RING, LOCK
60		9-997-919-01	o	HOLDER A, LENS
61		9-997-920-01	o	HOLDER B, LENS
62		9-997-921-01	o	RING, ADJUSTMENT
63		9-997-922-01	o	LID
64		9-997-923-01	s	EYECUP
65		9-997-924-01	o	RING, RUBBER
66		9-997-925-01	o	BALL, STEEL
67		3-680-417-01	s	LUPE B, VF
68		9-998-810-01	o	CASE, TOP
69		1-230-075-00	s	RES, VAR, METAL 2K "CONTR" "BRIGHT"
70		1-570-845-11	s	SWITCH, SLIDE "TALLY ON/OFF" "PEAKING ON/OFF"
71		9-994-802-01	s	DIODE SLH-56VT

RESISTOR, CHIP

1/10W
0 - 3.3M (E12) +-5% 1/10W

Ref. No.	Part No.	SP	Description
	1-216-295-00	s	RES, CHIP 0 5% 1/10W
	1-216-298-00	s	RES, CHIP 2.2 5% 1/10W
	1-216-302-00	s	RES, CHIP 2.7 5% 1/10W
	1-216-304-00	s	RES, CHIP 3.3 5% 1/10W
	1-216-306-00	s	RES, CHIP 3.9 5% 1/10W
	1-216-308-00	s	RES, CHIP 4.7 5% 1/10W
	1-216-309-00	s	RES, CHIP 5.6 5% 1/10W
	1-216-311-00	s	RES, CHIP 6.8 5% 1/10W
	1-216-313-00	s	RES, CHIP 8.2 5% 1/10W
	1-216-001-00	s	RES, CHIP 10 5% 1/10W
	1-216-003-00	s	RES, CHIP 12 5% 1/10W
	1-216-005-00	s	RES, CHIP 15 5% 1/10W
	1-216-007-00	s	RES, CHIP 18 5% 1/10W
	1-216-009-00	s	RES, CHIP 22 5% 1/10W
	1-216-011-00	s	RES, CHIP 27 5% 1/10W
	1-216-013-00	s	RES, CHIP 33 5% 1/10W
	1-216-015-00	s	RES, CHIP 39 5% 1/10W
	1-216-017-00	s	RES, CHIP 47 5% 1/10W
	1-216-019-00	s	RES, CHIP 56 5% 1/10W
	1-216-021-00	s	RES, CHIP 68 5% 1/10W
	1-216-023-00	s	RES, CHIP 82 5% 1/10W
	1-216-025-00	s	RES, CHIP 100 5% 1/10W
	1-216-027-00	s	RES, CHIP 120 5% 1/10W
	1-216-029-00	s	RES, CHIP 150 5% 1/10W
	1-216-031-00	s	RES, CHIP 180 5% 1/10W
	1-216-033-00	s	RES, CHIP 220 5% 1/10W
	1-216-035-00	s	RES, CHIP 270 5% 1/10W
	1-216-037-00	s	RES, CHIP 330 5% 1/10W
	1-216-039-00	s	RES, CHIP 390 5% 1/10W
	1-216-041-00	s	RES, CHIP 470 5% 1/10W
	1-216-043-00	s	RES, CHIP 560 5% 1/10W
	1-216-045-00	s	RES, CHIP 680 5% 1/10W
	1-216-047-00	s	RES, CHIP 820 5% 1/10W
	1-216-049-00	s	RES, CHIP 1k 5% 1/10W
	1-216-051-00	s	RES, CHIP 1.2k 5% 1/10W
	1-216-053-00	s	RES, CHIP 1.5k 5% 1/10W
	1-216-055-00	s	RES, CHIP 1.8k 5% 1/10W
	1-216-057-00	s	RES, CHIP 2.2k 5% 1/10W
	1-216-059-00	s	RES, CHIP 2.7k 5% 1/10W
	1-216-061-00	s	RES, CHIP 3.3k 5% 1/10W
	1-216-063-00	s	RES, CHIP 3.9k 5% 1/10W
	1-216-065-00	s	RES, CHIP 4.7k 5% 1/10W
	1-216-067-00	s	RES, CHIP 5.6k 5% 1/10W
	1-216-069-00	s	RES, CHIP 6.8k 5% 1/10W
	1-216-071-00	s	RES, CHIP 8.2k 5% 1/10W
	1-216-073-00	s	RES, CHIP 10k 5% 1/10W
	1-216-075-00	s	RES, CHIP 12k 5% 1/10W
	1-216-077-00	s	RES, CHIP 15k 5% 1/10W
	1-216-079-00	s	RES, CHIP 18k 5% 1/10W
	1-216-081-00	s	RES, CHIP 22k 5% 1/10W
	1-216-083-00	s	RES, CHIP 27k 5% 1/10W
	1-216-085-00	s	RES, CHIP 33k 5% 1/10W
	1-216-087-00	s	RES, CHIP 39k 5% 1/10W
	1-216-089-00	s	RES, CHIP 47k 5% 1/10W
	1-216-091-00	s	RES, CHIP 56k 5% 1/10W
	1-216-093-00	s	RES, CHIP 68k 5% 1/10W
	1-216-095-00	s	RES, CHIP 82k 5% 1/10W
	1-216-097-00	s	RES, CHIP 100k 5% 1/10W
	1-216-099-00	s	RES, CHIP 120k 5% 1/10W
	1-216-101-00	s	RES, CHIP 150k 5% 1/10W
	1-216-103-00	s	RES, CHIP 180k 5% 1/10W
	1-216-105-00	s	RES, CHIP 220k 5% 1/10W
	1-216-107-00	s	RES, CHIP 270k 5% 1/10W
	1-216-109-00	s	RES, CHIP 330k 5% 1/10W
	1-216-111-00	s	RES, CHIP 390k 5% 1/10W
	1-216-113-00	s	RES, CHIP 470k 5% 1/10W
	1-216-115-00	s	RES, CHIP 560k 5% 1/10W
	1-216-117-00	s	RES, CHIP 680k 5% 1/10W
	1-216-119-00	s	RES, CHIP 820k 5% 1/10W
	1-216-121-00	s	RES, CHIP 1.0M 5% 1/10W
	1-216-123-00	s	RES, CHIP 1.2M 5% 1/10W
	1-216-125-00	s	RES, CHIP 1.5M 5% 1/10W
	1-216-127-00	s	RES, CHIP 1.8M 5% 1/10W
	1-216-129-00	s	RES, CHIP 2.2M 5% 1/10W
	1-216-131-00	s	RES, CHIP 2.7M 5% 1/10W
	1-216-133-00	s	RES, CHIP 3.3M 5% 1/10W

MAIN BOARD

Ref. No.	Part No.	SP	Description
	1-589-128-11	o	MOUNTED CIRCUIT BOARD "MAIN"
	9-994-794-01	s	CRT
C20	9-994-781-01	s	TANTALUM 47 16V
C21	1-163-038-11	s	CHIP CERAMIC 0.1 25V
C22	1-163-038-11	s	CHIP CERAMIC 0.1 25V
C23	1-126-157-11	s	ELECT 10 20% 16V
C24	1-124-464-11	s	ELECT 0.22 20% 50V
C26	9-994-780-01	s	P-P CONDENCER 0.0047
C28	1-124-438-11	s	ELECT 1 20% 50V
C29	1-124-584-11	s	ELECT 100 20% 10V
C30	1-131-347-00	s	TANTALUM 1 10% 35V
C31	1-126-157-11	s	ELECT 10 20% 16V
C32	1-163-133-11	s	CHIP CERAMIC 470PF 5% 50V
C33	1-126-157-11	s	ELECT 10 20% 16V
C34	1-126-162-11	s	ELECT 3.3 20% 50V
C35	1-163-088-11	s	CHIP CERAMIC 0.1 25V
C36	1-124-455-00	s	ELECT 100 20% 16V
C37	9-994-777-01	s	ELECT 220 6.3V
C38	1-130-481-11	s	CAP,PE TEREPHTHALATE 0.0068 5% 50V
C40	1-163-088-11	s	CHIP CERAMIC 0.1 25V
C43	1-163-088-11	s	CHIP CERAMIC 0.1 25V
C44	9-994-782-01	s	TANTALUM 47 16V
C46	1-126-162-11	s	ELECT 3.3 20% 50V
C48	9-994-783-01	s	0.0056 100V
C49	9-994-778-01	s	ELECT 22 63V
C50	9-994-784-01	s	0.0015 1K
C51	1-163-088-11	s	CHIP CERAMIC 0.1 25V
C52	9-994-779-01	s	ELECT 56 16V
C53	1-163-088-11	s	CHIP CERAMIC 0.1 25V
C54	1-163-088-11	s	CHIP CERAMIC 0.1 25V
C55	1-163-088-11	s	CHIP CERAMIC 0.1 25V
CN4	9-994-791-01	o	RECEPTACLE, 7P
CN7	9-994-792-01	o	RECEPTACLE, 3P
CN8	9-994-793-01	o	RECEPTACLE, 2P
D2	8-719-914-42	s	DA204K
D4	8-719-911-19	s	1SS119
D5	9-994-773-01	s	ERA15-06
D6	9-994-774-01	s	1SS136
D7	8-719-948-45	s	ERA22-08

Ref. No.	Part No.	SP	Description
HLC	1-459-823-11	s	COIL,HORIZONTAL LINEARITY
IC2	8-759-300-28	s	HA11423MP: HITACHI
IC3	8-759-100-94	s	μPC358G2:
Q10	8-729-881-23	s	2SC2812-L7
Q11	8-729-881-23	s	2SC2812-L7
Q12	8-729-100-76	s	2SA812
Q20	8-729-881-23	s	2SC2812-L7
Q21	9-994-771-01	s	2SD1220
Q22	8-729-119-00	s	2SK612
Q23	8-729-162-43	s	2SB624-BV3
R43	⚠ 1-216-109-11	s	CHIP 330K 5% 1/10W
R44	⚠ 1-216-083-11	s	CHIP 27K 5% 1/10W
R60	⚠ 1-216-057-11	s	CHIP 2.2K 5% 1/10W
R61	⚠ 1-216-057-11	s	CHIP 2.2K 5% 1/10W
R66	⚠ 9-994-785-01	s	10M
R67	⚠ 9-994-786-01	s	91K
R69	⚠ 1-216-081-11	s	CHIP 22K 5% 1/10W
R70	⚠ 1-216-079-11	s	CHIP 18K 5% 1/10W
R72	⚠ 1-216-081-11	s	CHIP 22K 5% 1/10W
R73	⚠ 1-216-081-11	s	CHIP 22K 5% 1/10W
RV10	9-994-787-01	s	5K
RV11	9-994-788-01	s	5K
RV12	9-994-789-01	s	200
RV13	9-994-790-01	s	500
RV20	⚠ 1-228-459-11	s	METAL 10K
RV21	⚠ 1-228-458-11	s	METAL 5K
T1	⚠ 1-439-419-11	s	FBT

SW BOARD

Ref. No.	Part No.	SP	Description
	1-589-129-11	o	MOUNTED CIRCUIT BOARD "SW" (J,UC)
	1-589-129-21	o	MOUNTED CIRCUIT BOARD "SW" (EK)
C1	1-124-438-11	s	ELECT 1 20% 50V
C3	1-124-584-11	s	ELECT 100 20% 10V
C4	1-124-584-11	s	ELECT 100 20% 10V
C5	1-126-154-11	s	ELECT 47 20% 6.3V
C6	1-124-438-11	s	ELECT 1 20% 50V
C7	1-124-462-11	s	ELECT 10 20% 16V
C8	1-163-113-11	s	CHIP CERAMIC 68PF 5% 50V
C9	1-163-105-11	s	CHIP CERAMIC 33PF 5% 50V
C10	1-163-015-11	s	CHIP CERAMIC 0.0033 10% 50V
C11	1-163-038-11	s	CHIP CERAMIC 0.1 25V
CN1	9-994-803-01	o	8P
CN2	9-994-804-01	o	3P
CN3	9-994-805-01	o	5P
CN4	9-994-806-01	o	7S
CN5	9-994-807-01	o	2P
CP	9-994-808-01	s	PROTECTORS ICP-N10(EK)
D1	8-719-914-43	s	DAN202K
IC1	⚠ 8-759-630-27	s	M5236ML: MITSUBISHI
L1	9-994-800-01	s	100μH
L2	9-994-801-01	s	47μH
LED1	9-994-802-01	s	SLH-56VT
Q2	8-729-881-23	s	2SC2812-L7
Q3	8-729-881-23	s	2SC2812-L7
Q4	8-729-881-23	s	2SC2812-L7
Q5	1-806-828-11	s	2SC2814
Q6	9-994-796-01	s	2SC3722K
Q7	9-994-796-01	s	2SC3722K
Q8	8-729-881-23	s	2SC2812-L7
R2	⚠ 9-994-799-01	s	CHIP 24K 5% 1/10W
R3	⚠ 1-216-064-11	s	CHIP 4.3K 5% 1/10W
RV1	⚠ 1-228-473-11	s	METAL 5K
RV2	1-230-075-11	s	CARBON 2K "CONTR"
RV3	1-228-475-11	s	METAL 20K
RV4	1-226-368-11	s	CARBON 10K "BRIGHT"
S1	1-570-845-11	s	SLIDE "PEAKING ON/OFF"
S2	1-570-845-11	s	SLIDE "TALLY ON/OFF"

LED BOARD

Ref. No.	Part No.	SP	Description
	1-589-127-11	o	MAUNTED CIRCUIT BOARD "LED"
	9-994-810-01	o	LED PWB
CN9	9-994-809-01	o	RECEPTACLE, 5P
LED2	8-719-800-25	s	TLR109A
LED3	8-719-800-25	s	TLR109A
LED4	8-719-800-25	s	TLR109A
LED5	8-719-800-19	s	TLO102A

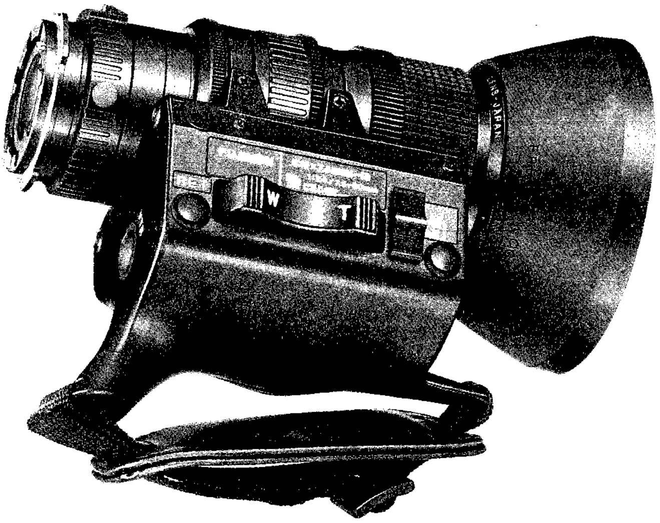
FRAME

Ref. No.	Part No.	SP	Description
Q1	8-729-315-63	s	2SB856

PACKING MATERIAL AND ACCESSORIES

Ref. No.	Part No.	SP	Description
	3-166-610-01	o	CARTON, INDIVIDUAL(UC)
	3-166-612-01	o	CARTON, INDIVIDUAL(EK)
	3-699-152-01	o	CUSHION, UPPER
	3-699-153-01	o	CUSHION, LOWER
	3-701-627-01	o	BAG, POLY

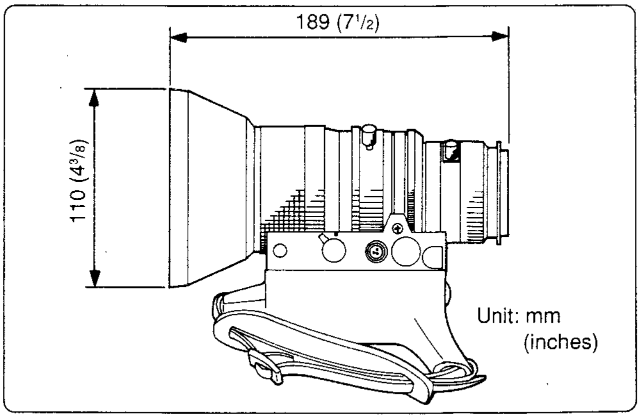
ZOOM LENS



SPECIFICATIONS

Focal length	7.5 to 90 mm
Zoom	Manual and motorized, selectable Zooming ratio: 12 ×
Maximum aperture ratio	1.4
Iris control	Manual and auto, selectable 1.4 to 16 and C (closed)
Range of object field (at the distance of 1.1 m)	W (wide angle): 660 × 880 ($24\frac{1}{2} \times 34\frac{3}{4}$ inches) T (telephoto): 55 × 73 mm T (telephoto): ($2\frac{1}{4} \times 3$ inches)
Minimum object distance	1.1 m
Filter thread	72 mm dia., 0.75 pitch
Mount	Bayonet mount, $\frac{1}{2}$ inch
Weight	About 1.2 kg (2 lb 4 oz) with lens hood
Supplied accesory	Operating instructions (1)

Dimensions



Design and specifications are subject to change without notice.

SONY®

SERVICE MANUAL

No.	Part No.	SP	Description
1	3-707-247-01	o	LEVER, ZOOM
2	3-708-108-01	o	HOOD
3	3-708-109-01	o	CAP, HOOD
4	3-708-110-01	o	CAP, DUST